# The Journal of the American Medical Association

**Published Under the Auspices of the Board of Trustees**

VOL. 71, No. 16 CHICAGO, ILLINOIS OCTOBER 19, 1918


## INSANITY VERSUS MENTAL DISEASES

### THE DUTY OF THE GENERAL PRACTITIONER IN PSYCHIATRIC DIAGNOSIS *


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The time has come when the general practitioner must assume responsibilities new to him: he must become as much a psychiatrist as he is specialist in other directions.[1] But how specialistic, it may be asked, is the general doctor-man to be? *Quien sabe?* And times change. But so much is certain: The general doctor-man does not know as much about psychiatry either as he should know, or as he has command of, let us say, pediatrics, gynecology or dermatology. Science, C. S. Peirce defined, I believe, as the range of ignorance. Well, the general practitioner's range of ignorance *re* psychiatry is altogether too wide for his own conscience's comfort and disastrously wide for the good of society.

All this can now be shouted from housetops by reason of what the layman terms "shell shock," a problem for medicine no less wide than the whole of clinical neurology and psychiatry, the field we are coming to know as neuropsychiatry.[2] But already before the shell shock alarums, the American general practitioner had become responsible in these matters for more than his father had to be. In 1906 the state of Michigan had laid down its psychopathic ward at Ann Arbor and placed in control of it a specialist novel in training, functions and scope. Now, it is safe to say, no state can hold up its head in a place of the highest honor in civilization without establishing a psychopathic hospital. The commonwealth of Massachusetts, in 1912, followed the lead of Michigan. Private endowment allowed in 1913 the establishment in Maryland of another institution in which the scientific point of view made use of physicians, psychologists and trained lay workers for the high modern purposes of mental hygiene. Meantime, societies for mental hygiene had been established,[3] and doubtless others are now moving. The yeast is working, too, in the National Conference of Social Work; and just as "charities and correction" has fused and crystallized into "social work," so the former committee of that body on "feeblemindedness and insanity" has now crystallized into a committee on "mental hygiene." The medical man who does not some year attend a meeting of the National Conference of Social Work[4] will sooner or later wake up to reckon without his host—the social worker. In brief, no sign fails to point to an increasing demand for more medical service, as well as for more service of every technical sort, for the psychopath.

But what exactly ought the general practitioner to do for his instruction in modern psychiatry? He looks back at a meager training. He was by law as a rule excluded for a period of years from whetting his mind on medicolegal problems of commitment: the law somehow permitted him to remove an appendix the moment he passed his state board examination, but the law required experience and a partner in the matter of certifying insanity. Again, early in this century a flood of Teutonic verbiage overflowed the field, and the graduate doctor who ventured inside an asylum hastily beat a retreat when *Merkfähigkeit* raised up its head or *Dämmerzustand* closed down over all. Of course various clearly written books gave the main facts (de Fursac,[5] Dercum,[6] Diefendorf,[7] Peterson,[8] White,[9] et al.); but there was little in the medical school memories of most men to tie these facts to, except a few *curiosa* of dismal asylum walks and some medicolegal stories too mature for the nonsocialized medical student to grasp in their proper relations. Am I painting this picture too dark? Now and then at the apex of a particular career some outstanding man is able to prevail on medical colleagues to give him enough curricular time to do the topic justice; but on the whole, even in so-called Class A medical schools, either the ignorance of committees, or curricular pressure, or remoteness of clinical material, or an overripe professional point of view, has killed in embryo the medical student's chances of learning much about psychiatry.

I consider and propose that all general practitioners who feel at a loss how practically to use the relics of their psychiatric training or the products of their reading in such books as the above mentioned should as soon as possible spend at least a week in contact with

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. To show the popular interest in these topics, see any numbers, especially Current Bibliography, of Mental Hygiene, published quarterly by the National Committee for Mental Hygiene, Inc., 50 Union Square, New York City.

2. See remarks in the Sattuck Lecture for 1918: Southard, E. E.: Shell Shock and After, Boston Med. and Surg. Jour., 1918, **178**, 74.

3. Connecticut, 1908; national, 1909; Illinois, 1909; New York, 1910; Massachusetts, 1913; Maryland, 1913; Pennsylvania, 1913; North Carolina, 1913; Dayton, Ohio, 1914; District of Columbia, 1915; Alabama, 1915; Louisiana, 1915; California, 1915; Rhode Island, 1916; Ohio, 1916; Tennessee, 1916; Missouri, 1916; Indiana, 1916; Iowa, 1917; Virginia, 1917.

4. Proc. National Conference of Charities and Correction, especially for 1915, Baltimore; 1916, Indianapolis; 1917, Pittsburgh; 1918, Kansas City (name now changed to National Conference of Social Work).

5. De Fursac: Psychiatry, translated by Rosanoff, latest edition.

6. Dercum: A Clinical Manual of Mental Diseases, 1917.

7. Diefendorf: Clinical Psychiatry: A Textbook for Students and Physicians.

8. Peterson, in Church and Peterson: Nervous and Mental Diseases.

9. White, W. A.: Outlines of Psychiatry.

the clinical material of some institution like the Ann Arbor Psychopathic Ward, the Boston Psychopathic Hospital, or the Henry Phipps Psychiatric Clinic at Baltimore. I specify these institutions, not because the state institution men are unable to give in some instances even more valuable instruction, but because the specified institutions have contact with the acute, curable, incipient and dubious cases that most resemble the most important psychiatric material of general practice. I have not the slightest doubt that the authorities of the specified institutions would not only tolerate but actually welcome the arrival of the general practitioners for such study purposes. I am sure that the general practitioner who comes for a week will want to stay a month and will certainly come back for more.

### WHAT THE GENERAL PRACTITIONER SHOULD KNOW OF PSYCHIATRY

I want now to sketch the main features of the psychiatric landscape as I think it should be commanded by the general practitioner.

First, the general practitioner ought to become something of a *psychiatrist* and not in the first instance try to become an *alienist*. I am here making a somewhat unfamiliar distinction. In Table 1 I summarize in parallel columns the line of distinction as I think it might well be drawn.

I recently discussed somewhat fully the intricacies of the foregoing parallel column.[10] The point here rather is to ask how much of the field of mental disease, medically considered, the general practitioner ought to have in his range. I suppose there can be no doubt that the general practitioner ought to know relatively as much about psychiatry as he does about the sixteen or seventeen other main groups of topics that we denominate practical specialties. A general practitioner must be *general* in that he has actually more command of all the specialties than any one of the specialists is likely to have concerning the same topics. The general practitioner must at least have the function of being able to specify the right specialist or specialists to call in consultation. If by chance the general practitioner is himself something of a specialist in pediatrics or certain aspects of internal diseases (and surely every general practitioner ought to be something of a specialist in some direction if only to gauge his knowledge concerning general medicine), it is so much the better for the fate of the particular child or adult whose illness is in question. But we do not demand of the general practitioner a fine capacity in the diagnosis of skin diseases or of the minutiae of ophthalmology and otology. Up to recent times, we have not demanded from the general practitioner a knowledge of so much about mental diseases as we have often been able to demand for diseases of the skin, the ear or the eye. The time has come when the general practitioner must assume responsibility in this direction. Even at the expense of postgraduate work on the topic, the general practitioner is going to fail who does not proceed to acquire a grasp on the main conceptions of psychiatry.

TABLE 1.—LINE OF DISTINCTION BETWEEN ALIENIST AND PSYCHIATRIST

| ALIENISTS | PSYCHIATRISTS |
|---|---|
| Field: insanity, the insane | Field: psychiatry, the mentally diseased |
| Field: public, governmental, legal | Field: social, private, medical. |
| Field: opinion for court use | Field: medical, psychologic and social diagnosis and treatment. |
| Decisions alternative: Sanity versus insanity | Decisions selective: e. g., syphilitic, feebleminded, epileptic, alcoholic, coarse brain disease, symptomatic, senescent-senile, schizophrenic, cyclothymic, psychoneurotic, etc. |
| Insanity implies mental disease | Sanity consistent with mental disease of mild degree or of special type |
| Sanity : Insanity = 1 : 0 | Mental disease of all degrees, of many kinds |

I have recently, for the purpose of discussion with specialistic colleagues, gone over the textbooks and the main classifications used in institutions for the insane and the psychopathic, confining my attention to American views.[11] I find an extraordinary unanimity on the part of these colleagues on the subject-matter of psychiatry. Those of the general practitioners who occasionally dip into the specialistic literature of mental and nervous disease strike into an atmosphere of what must seem the most lively controversy. But in point of fact the battles are greatly localized—I mean the actual battles concerning facts. There is a good deal of nomenclatural difference still preserved in sundry textbooks. I have been trying to put some order into this matter and offer in Table 2 a list of the major groups of mental disease which I think will be found approved by the vast majority of specialists.[12] In fact, I do not know a single specialist who would not agree that in some sense each of the subjoined groups exists. To be sure, some specialists might want to split the groups up further, but of the existence of this mass of medical data there is really no doubt.

TABLE 2.—MENTAL DISEASE GROUPS (ORDERS)

| | |
|---|---|
| 1. Syphilitic | Syphilopsychoses |
| 2. Feebleminded | Hypophrenoses |
| 3. Epileptic | Epileptoses |
| 4. Alcoholic, drug, poison | Pharmacopsychoses |
| 5. Focal brain ("organic," arteriosclerotic) | Encephalopsychoses |
| 6. Bodily disease ("symptomatic") | Somatopsychoses |
| 7. Senescent, senile | Geriopsychoses |
| 8. Dementia praecox, paraphrenic | Schizophrenoses |
| 9. Manic-depressive, cyclothymic | Cyclothymoses |
| 10. Hysteric, psychasthenic, neurasthenic | Psychoneuroses |
| 11. Psychopathic, paranoiac, et al. | Psychopathoses |

I put into the left-hand column the everyday terms for these groups and in the right-hand column a revised and Hellenized nomenclature which I believe has some worth. Concerning this Hellenized nomenclature, I wish to say that in practice I would no more speak of the hypophrenoses in a school for the feebleminded than I would of the *Leguminosae* for dinner or the *Rosaceae* for a nosegay. The advantage of the Grecian nomenclature is quite another, namely, the possibility of exact definition, which the everyday terms do not admit, particularly as some of them deal with disease entities (as dementia praecox) rather than with disease entity *groups*.

The practical contacts of the Boston Psychopathic Hospital with the Massachusetts profession lead me to the idea that the "range of ignorance" of psychiatry by the general profession can safely be localized.

Let us dismiss the eleventh or psychopathic group of the foregoing list, namely, a group I am sometimes tempted to call the "ragbag" group of mental diseases, since the psychopathias, monomanias, psychopathic personalities, etc., which, with varying nomenclature,

10. Southard, E. E.: Alienists and Psychiatrists: Notes on Divisions and Nomenclature of Mental Hygiene, Ment. Hyg., 1917, **1**, 567.

11. Southard, E. E.: Recent American Classifications of Mental Diseases (to be published in Tr. Am. Med. Psychol. Assn., 1918).

12. Southard, E. E.: A Key to the Practical Grouping of Mental Diseases, Jour. Nerv. and Ment. Dis., 1918, **47**, 1.

are dropped into this group, are the regions of densest ignorance on the part not only of general practitioners, but also on the part of psychiatrists themselves.

Limiting consideration, then, to the ten other and better defined groups, I note that the first seven are groups whose general features are well enough understood by the general practitioner, so that, barring mistakes in diagnosis and delays in handling, there is a minimum of gross error on the part of the general practitioner.

The general practitioner may not agree, nor will perhaps all of the older psychiatric specialists agree, that virtually every, if not every,[13] case of mental disease requires consideration as possibly syphilitic (I). Nevertheless all practitioners concede that there is a syphilitic group of mental disorders, some of which require intensive treatment.

Again, with respect to the hypophrenias,[14] most physicians are aware of the increasing part played by the diagnosis of feeblemindedness (II) in modern work touching general practice with special reference to the schools and juvenile courts. Though they may be in doubt concerning the exact value and scope of mental tests, nevertheless the general rubric of feeblemindedness has become familiar. So much emphasis has been laid on the higher grades of so-called feebleminded ness, namely, on the "stupids" or subnormals whom it seems invidious to term "feebleminded," that I have had no hesitation in proposing the term "hypophrenic" to cover all forms of feeblemindedness, not merely the feebleminded proper of English and Canadian usage, but also the imbeciles and idiots below the feebleminded proper and the "stupids" or subnormals above the feebleminded proper.

The epileptic group (III) and the group of mental diseases due to alcohol, drugs and poisons (IV), are reasonably familiar to the general practitioner; and although a good many bad mistakes may be committed in these groups, yet the percentage of errors committed by psychiatric specialists themselves in the same groups is so high that we should not weep about general practitioners' motes from our own specialistic eyes containing large beams.

The fifth group in the foregoing classification, namely, that of mental disease due to focal brain disorder (V), is another group sufficiently familiar to the general practitioner, as also to the neurologist whose special field it touches, and the common categories of mental symptoms found therein are likewise familiar. The general practitioner sees enough cases of arteriosclerotic brain disease, of meningitis, of brain tumor and the like, to be familiar with the not very special mental effects that these brain disorders evoke.

Again, in his everyday capacity as a diagnostician, the general practitioner gets a certain familiarity with the sixth or internist's group of mental disorders—the so-called symptomatic psychoses based on definite somatic disorder (VI), such as a typhoid fever, a pneumonia, a puerperal exhaustion, a cardiorenal disease, a dysthyroidism or even a pellagra. The symptoms here also are such as are familiar to the general practitioner and run on the same lines as the symptoms of disease in general.

The seventh, the senile and presenile group (VII), is again a group in which the symptoms are for the most part such as are easy to understand in the quantitative terms of everyday life.

But, with the enumeration of these seven groups, we have come to the conclusion of the list of diseases in which the symptoms are, as one might say, familiar and wellnigh quasinormal, following lines which the physician can readily understand by comparison with the phenomena of his own life. For in the three remaining groups, the schizophrenic (VIII), cyclothymic (IX) and psychoneurotic (X) groups, there are phenomena of such supernormal or subnormal degree or of such an abnormal and dissociative nature that a considerable specialistic study is required to unravel them. I find that many practitioners, even in haughty old Massachusetts, figuratively throw up their hands when asked to define dementia praecox (here termed schizophrenic) or manic-depressive (here termed cyclothymic) psychosis.

As for the psychoneuroses, the attitude of some practitioners, though I hope not too many, is that the symptoms in this group are "imaginary" and by consequence in some sense nonexistent. The attitude of many general practitioners to the psychoneuroses is like the attitude of the Christian scientists to disease in general: the psychoneuroses are regarded as a form, not perhaps of "mortal error," but of nonexistent disease which the patient is to be got rid of by a process akin to exorcism. This erroneous opinion[15] depends on a confusion between the method of psychotherapy and the nature of the etiologic or genetic features of the psychoneuroses. Because by faith mountains are moved, one has no license to consider that faith established the mountains in the first place.

Accordingly, the difficulties of the general practitioner in confronting the schizophrenics and cyclothymics on the one hand, and the psychoneurotics on the other, are of different sorts. The practitioner of some years' standing has simply had no opportunity to study intensively in the medical school or in postgraduate work enough schizophrenics and cyclothymics to permit his understanding their nature. As for the psychoneurotics (whether in the form of hysterics, neurasthenics or psychasthenics), the general practitioner is sufficiently familiar with their general nature, having enough of them and to spare in his consulting rooms. Nevertheless, his ideas concerning them are apt, I think, to be somewhat vague, or at least vague enough to permit his calling many a case of schizophrenia or of cyclothymia erroneously a case of psychoneurosis. Hence I think are brought about a number of false prognoses and a number of poor prescriptions for sanatorium treatment, treatment by change of environment, or special treatment at home, when some other of these treatments than the one chosen would have been far better for the patient.

It is for no academic reason, therefore, that I ask the general practitioner to bring himself up level with the times in the matter of schizophrenia and cyclothymia. I feel that if he gets an adequate notion of schizophrenia and cyclothymia, his already reasonably correct notions of the psychoneuroses will get their proper balance and perspective alongside the other psychoses. I found one really eminent practitioner denouncing the word "schizophrenia" because he had

13. Southard, E. E., and Solomon, H. C.: Neurosyphilis: Modern Systematic Diagnosis and Treatment, Presented in One Hundred and Thirty-Seven Case Histories, Boston, W. M. Leonard, 1917.

14. For this term see remarks by the writer in Tr. Am. Assn. for the Study of the Feebleminded, 1918.

15. Southard, E. E.: Shell Shock and After, Boston Med. and Surg. Jour., 1918, 1-15, especially pp. 76 and 77.

been practicing for decades and ought really to have known what schizophrenia meant if there really was any such symptom or condition. On inquiry, however, I found that the eminence of this practitioner, which was very genuine, had been attained in ways which excluded him from any knowledge of the peculiar symptom or condition known as schizophrenia. And what holds for dementia praecox holds also for manic-depressive psychosis. The week's excursion to some psychopathic hospital or psychiatric clinic, above suggested, ought to lay hold especially on the concepts of schizophrenia and cyclothymia; and the attainment of elementary knowledge concerning these two groups will bring the level of the general practitioner's knowledge concerning mental diseases up to the level of his general knowledge concerning the diseases of other specialties. In particular, his practice with the early cases, cases which he sees often earlier than does the psychopathic hospital or the psychiatric clinic, will be tremendously benefited thereby, and his efforts at psychotherapy will not be measurably wasted on schizophrenics and cyclothymics, but will be concentrated on the genuine psychoneurotics.

If one thinks that this program for bringing up the level of the general practitioner's knowledge in mental disease to his general level in other specialties is too dogmatic and concrete a program, I have only to say that it is at all events a program, and that measures of some sort are stringently necessary in the interest of the mental hygiene of the community.

I trust that in the foregoing paragraphs I have successfully conveyed the impression that these counsels have nothing to do with nomenclature and terminology, but only with the groups themselves under whatever name they might go. I recently gave a talk on shell shock with some literary examples of the neuroses in the group, and was assured afterward by a practitioner that he was now certain of what he had long suspected, namely, that there was no such thing as shell shock. I found that (*a*) his idea that there was no such thing as shell shock reduced to the idea that had been for some decades in his mind that (*b*) neuroses do not exist because (*c*) their symptoms were "imaginary" and that (*d*) to be imaginary meant for this man to be nonexistent. Now *is or is not this distinction between the imaginary and the nonexistent too fine a distinction to implant in the medical student's mind?* Just as the laity is unable to distinguish successfully between "hereditary" and "congenital," so I find many a medical man unable to distinguish between "imaginary" and "nonexistent." If the neuroses have no structural sign postmortem, are the neuroses nonexistent? But peace to the soul of the general practitioner who listened to my shell shock talk! Calmly identifying "imaginary" with "nonexistent," he probably is a very good psychotherapeutist among his parochial flock.

I have adverted above to one little matter of nomenclature, insisting on the virtues of the term "hypophrenic" as including the entire swelling group of the so-called feebleminded. The human advantages of using the term "hypophrenic" pale into insignificance beside the advantages of using some other term for the so-called dementia praecox group than the term borrowed by Kraepelin to designate a group of diseases which he had synthesized from the literature. Some day I wish to write a paper called "Nondementia, Nonpraecox."

If I tell a layman that so-and-so is suffering from shell shock, the layman is aware that the term "shell shock" *connotes* a great deal about the war and its effects, but quickly observes that the term *denotes* little or nothing, and he is forthwith thrown back on the expert for information as to what shell shock really means and what its prognosis may be. Not so when the ardent social worker learns that so-and-so is a victim of dementia praecox. Is she not almost entitled to think that a victim of dementia is demented or else is going to become demented? Are there not similar significances attached to the term "praecox"?

I believe that a great deal of harm has come to patients from the use of the term "dementia praecox," and most psychiatric specialists whom I have consulted on the point cordially agree with me. On this account I have felt that the proposal of the Swiss psychiatrist Bleuler[16] to use the term "schizophrenia" for cases subject to the peculiar dissociation found in these cases is a good one. The fact that it has a peculiar sound, novel to medical ears of the last generation, is no good reason for denouncing the term "schizophrenia," since the symptoms of the disease are at least as peculiar as the name, and there is a good deal of novelty about the whole conception to many general practitioners and consulting internists.

I will not here argue in detail for the use of the term "cyclothymia" instead of manic-depressive psychosis, although I think the tendency of usage and certain logical points may be advanced in favor of cyclothymia, a term which includes in its prototheme the idea of periodicity, always potential in this disease, and in its deuterotheme the idea of affective or emotional disorder, a constant feature of the disease.

I give below the subforms of these eleven great groups of mental disease.[17] These subforms are a product of some American textbooks and specimens of classification now most in vogue. I think this listing, for which I do not wish here to argue in detail, certainly shows that psychiatry is on a pretty stable basis so far as classification is concerned—possibly as stable as many other growing specialties.

Two points are to be made concerning this subjoined list. The diagnosis of these entities (or generic groups) under the greater groups (or orders) is not to be expected of the general practitioner, nor even of the psychiatric specialist on cursory or brief examination. Indeed, I hold that much harm has been wrought by an offhand diagnosis of "general paresis" when all any one could really say, with laboratory tests also in hand, was that the patient had "neurosyphilis." Many errors of this sort, both by general practitioners and by psychiatrists (including ourselves), are given in detail in the monograph published by Solomon and myself[18] in 1917 on neurosyphilis. No, it is much better for the peace of mind of practitioner and patient that the practitioner shall stop short with his *group* diagnosis and let the *entitative* (generic) diagnosis wait on the psychiatric specialists (one of the soundest of whom is Father Time). It is not for the purposes of "brilliant," that is to say, premature and at all events merely lucky, diagnoses that I subjoin the genera which American psychiatry seems, by its textbooks, to afford.

16. Bleuler: Schizophrenie, in Aschaffenburg's Handbuch der Psychiatrie, 1911.

17. For more particulars, see Southard, E. E.: The Genera in Certain Great Groups of Mental Diseases, to be published in Tr. Am. Neurol. Assn.

The second point deals not with the objects of diagnosis so much as with the process of diagnosis. I have placed the great groups with Roman numerals (I, Syphilopsychoses; II, Hypophrenoses, etc.) in a certain sequence which I take to be the practical sequence of successive exclusion and elimination that is of the most value in the present phase of psychiatric theory. No one need use this sequence if one prefers another, and the sequence will inevitably change in the course of time when new facts and new tests are granted to us. And not only the sequence but also the list itself will inevitably alter. Not only have I placed the greater groups or orders of mental disease in a particular practical sequence, but I have endeavored also to place the smaller groups or "genera" of mental disease in a practical diagnostic sequence under each greater group. Again, any one who chooses to use the items as a *list* and not as a *sequence* is entitled to do so: I would claim only that *some* sequence is of practical value in diagnosis, at least for tyros.

TABULATED SUGGESTIONS FOR GENERIC CLASSIFICATION OF MENTAL DISEASE GROUPS

I. SYPHILOPSYCHOSES (the syphilitic mental diseases):

| *Genera:* | Less common genera: |
|---|---|
| General paresis | Syphilitic feeblemindedness |
| Juvenile paresis | |
| Nonparetic forms: | Syphilitic epilepsy |
| Meningitic | Tabetic psychosis[18] |
| Vascular | Syphilitic paranoia |
| Gummatous | Atypical |

II. HYPOPHRENOSES (the feeblemindednesses, including graded forms of idocy, imbecility, moronity (in the English nomenclature feeblemindedness proper) and subnormals):

[Syphilitic[19]]
Encephalopathic:
Microcephaly, hydrocephalus, focal brain disorder
Glandular:
Cretinism, infantilism, dysadenoidism, mongolism (?)
Hereditary:
Feeblemindedness, amaurotic family idiocy
Atypical

III. EPILEPTOSES (the epileptic group):

| | |
|---|---|
| [Syphilitic[20]] | Jacksonian |
| [Feeblemindedness with epilepsy[21]] | Symptomatic |
| | Idiopathic |
| Alcoholic | Equivalent |
| Traumatic | Narcoleptic |
| Encephalopathic | Borderland |

IV. PHARMACOPSYCHOSES (the group of mental diseases due to alcohol, drugs and poisons):

[Epileptic[22]]
Alcoholic:
A. Pseudonormal:
Drunkenness, pathologic intoxication, dipsomania
B. Peripheral—Central[23]
Delirium tremens, hallucinosis, Korsakow's disease, pseudoparesis
C. Central
Jealousy-psychosis, paranoia (?), dementia
Drug:
Morphin, cocain, alkaloid
Poison:
Lead, gas, mercuric chlorid, special

18. Of course this is sharply to be distinguished from ordinary tabes dorsalis and nervous disease, and from so-called taboparesis, which by the best nomenclature is a subform of general paresis.
19. Syphilitic feeblemindedness has been classified under the syphilopsychoses, Group I.
20. These have been classified under the syphilopsychoses, Group I.
21. These have been classified under the hypophrenoses, Group II.
22. These have been classified under the epileptoses, Group III.
23. The nomenclature of these subgenera must remain dubious. I think most workers among the alcoholic psychoses would recognize the value of dividing them in some such triple way as above. The general practitioner has not yet at all clearly in mind, I think, the distinction now drawn by specialists between drunkenness and pathologic intoxication and between delirium tremens and alcoholic hallucinosis. Perhaps it would be well enough to leave these distinctions to the specialists were it not for the fact that so many medicolegal points hinge on the practical decision in cases that fall into the hands of the police.

V. ENCEPHALOPSYCHOSES (focal brain lesion group of mental diseases):

[Syphilis[24]]
[Feeblemindedness[24]]
Epilepsy[24]
[Alcohol, gas[24]]
Traumatic. Note that the traumatic *neuroses*, although they form a group of mental diseases, belong not here in Group V, but below in Group X, the psychoneuroses.
Infectious. The infectious group of encephalopsychoses here listed refers to cases like brain abscess and meningitis in which the organism has produced local destructive effects in the brain.
Neoplastic
Vascular. Under this group would fall the great group of arteriosclerotic dementias which, be it noted, are parted out from the old age psychoses, Group VIII, below.
Degenerative

VI. SOMATOPSYCHOSES[25] (the so-called symptomatic group of mental diseases):

[Glandular feeblemindedness]
[Symptomatic epilepsy]
Infectious, e. g., typhoid
Exhaustive, e. g., puerperal
Metabolic, e. g., cardiorenal
Glandular, e. g., thyrotoxic
Pellagrous

VII. GERIOPSYCHOSES[26] (the presenile-senile group of mental diseases):

| | |
|---|---|
| [Epilepsy] | [Involution melancholia] |
| [Vascular] | Presenile psychosis |
| [Alzheimer's] | Senile dementia |
| [Progeria] | Presbyophrenia |
| [Late catatonia] | Senile psychoses |

VIII. SCHIZOPHRENOSES (the dementia praecox group):

| | |
|---|---|
| Hebephrenia | Schizophasia |
| Catatonia | Dementia praecocissima |
| Paranoid | Dementia simplex |
| Cyclothymoid[27] | Paraphrenia |

IX. CYCLOTHYMOSES (the manic-depressive and cyclothymic group of mental diseases):

| | |
|---|---|
| Cyclothymic constitution | Mania |
| Manic-depressive[28] | Mixed[28] |
| Melancholia | Involution-melancholia |

X. PSYCHONEUROSES:

Hysteria
Neurasthenia
Psychasthenia

XI. PSYCHOPATHOSES (the psychopathic group of mental diseases):

| | |
|---|---|
| | Sense deprivation psychosis |
| Prison psychosis | |
| Folie à deux | Monomania |
| Litigation psychosis | Psychopathia sexualis |
| Paranoia | Psychopathic personality |

24. These have been classified, respectively, under syphilopsychoses, Group I; hypophrenoses, Group II; epileptoses, Group III, and pharmacopsychoses, Group IV.
25. The term "somatic" is here used following a frequent neurologic plan which employs the term "soma" for the body at large, as against the "encephalon" or brain.
26. This term is adopted provisionally as against the possible term "presbyopsychoses" because of Nascher's choice of the term "geriatrics" for his proposed branch of medicine, dealing with the diseases of old age.
27. This genus, if it be such, is devised to include a practically very important group of cases in which the schizophrenic process is precipitated by phenomena that resemble manic-depressive psychosis, or in which there is a definitely cyclothymic course, in itself suggesting the true cyclothymoses.
28. These two forms are designed to include, respectively, cases in which phases of pure mania of depression follow one another, and the cases in which depression and maniacal phenomena are commingled within the single phase.

SUMMARY

The psychiatrist is a specialist in a very complicated field with numerous great groups of diseases for his diagnostic consideration. Each of these great groups is likely to be as complicated within itself as, for example, the group of Bright's disease or the exanthems. The psychiatrist is logically opposed to the

alienist. The latter has the function of the public and medicolegal adviser, whereas the psychiatrist is a practitioner whose aim is not merely diagnostic with respect to commitment; his aim is diagnostic with respect to a great number of therapeutic possibilities.

The general practitioner must now advance to at least as much responsibility in psychiatry as he has in pediatrics, gynecology or dermatology. The general practitioner, if he is to remain of value, ought to know more about all the specialties than each specialist would be apt to know about all other specialties than his own.

Recent reviews of the ideas of psychiatric specialists show a great deal of unanimity as to the major groups of mental diseases. This genuine unanimity is obscured by nomenclatural divergence. At the risk of increasing the nomenclatural divergence, I have been of late proposing a pragmatic key to the group of mental diseases, dividing up the groups according to general and special therapeutic possibilities. I have accordingly no etiologic or somatosystematic suggestions to offer. My classification is purely practical and has no relation either to obvious clinical units from the standpoint of observation or to anatomic resemblances. For example, I would contend that a grouping of mental depressions as sometimes syphilitic, sometimes cyclothymic, sometimes symptomatic, etc., gives the practitioner no orderly means of making his decision in a brief space of time. Such a classification on the ground of clinical resemblances is, in office practice, next to useless, whereas the bigger decision as to whether the patient probably belongs in one of the eleven groups as herein presented is practically much more valuable. Then if the quest can be localized to two or three of the eleven groups, the patient's fate will be greatly benefited.

Again, I feel that the classification of certain diseases as organic dementias hurts the outcome for the patient by delaying decision. The practitioner is rather apt to feel satisfied with thinking that a case is somehow organic, whereas it may be his immediate duty to settle once for all whether the patient is syphilitic, and then to proceed to the more careful differentiation of the possibilities in the focal brain lesion group. But my attitude in general with respect to the general practitioner's duties in diagnosis is that in the first place it is his duty to determine whether the case belongs in the mental group and then to proceed to answer as many questions as available ordinary clinical tests can answer with respect to the place of the patient in some one of these major groups. It is certainly a waste of time for the general practitioner to approach the neurologic specialist with an at all complicated or longstanding case in which the serum test for syphilis has not been performed. With the multiplication of opportunities for mental tests, it is also a waste of time for the general practitioner not to have submitted his case to such tests before bringing the patient to the specialist. I do not mean that the general practitioner should himself perform these tests but that he should utilize some local psychologist competent to perform them.

And so through the list, if the general practitioner knows the main features that distinguish these greater groups of mental diseases from one another, he will be able to utilize the specialist to much greater advantage. The specialist who should fear that his practice would be diminished by such a process on the part of the general practitioner would be so foolish that I suspect he could not be an effective specialist; for if the general practitioner could grasp the main features that distinguish these eleven greater groups of mental diseases from one another, he would carry to the specialist scores and hundreds of cases more than he now carries. For under these circumstances, the general practitioner would know how to couch a great many more questions.

Meantime I find from my Boston Psychopathic Hospital practice that the general practitioners are pretty well grounded in the first seven of the major groups of diseases listed. The general practitioner also has certain ideas concerning the psychoneuroses, but is rather apt to make somewhat obvious errors in the field of the schizophrenias (dementia praecox) and the cyclothymias (manic-depressive group). Sundry patients suffer therapeutically on account of delayed diagnosis in the two latter groups and especially from an erroneous identification of them as belonging to the group of the psychoneuroses.

As for the psychopathias in general, the general practitioner need not rush in where the psychiatric specialists fear to tread.

## CONCLUSIONS

1. The advance of the mental hygiene movement throws more responsibilities in psychiatric diagnosis on the general practitioner.

2. The general practitioner should bring his specialistic knowledge of psychiatry up level with his specialistic knowledge, in ophthalmology and dermatology, for example.

3. Alienists are to be distinguished from psychiatrists, and forensic psychiatry ("alienistics") from practical psychiatry, in certain ways (Table 1).

4. There is at present great unanimity on the part of American specialists in mental disease, as indicated by the adoption of common statistical forms (American Medico-Psychological Association).

5. For arriving at a diagnosis of mental disease, I suggest an arbitrary order of exclusion by eleven great groups, into which I have thrown the accepted entities.

6. Nomenclatural divergences are much more frequent than divergences on facts.

7. The use of Bleuler's term "schizophrenia" for dementia praecox and of the term (in cognate use) "cyclothymia" for manic-depressive psychosis is advocated in the line of exactitude and the ready formation of adjectives and relative terms.

8. The use of a new term "hypophrenia" for the various feeblemindednesses is advocated.

9. The ending *"osis"* is in general advocated for the larger groups of mental diseases, parallel with the use of *"aceae"* and *"osae"* for botanical orders.

10. A tentative list of "genera" under these orders is given in the text.

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**Baking Bread with Waste Heat.**—The city council of Reykjavik, Iceland, has begun the experiment of baking bread in a special bakery which utilizes the waste heat from the local gas works. The result has been excellent and in a short time, according to a report of Consul B. L. Agerton at Copenhagen, *Commerce Reports*, Sept. 17, 1918, all the black bread which may be needed will be baked in the new bakery. This is thought to be the first experiment in bread baking by waste heat.

# CEREBRAL EDEMA FROM PRESSURE*

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The title of this paper may not be entirely in keeping with the contents, but it is intended to open the subject of localized cerebral edema from various causes, particularly from pressure conditions, and also to bring out similar cases, recorded or observed by members of this section, in which focal symptoms suggest a more extensive lesion of the brain which, if operated on, shows that a simple edematous state presents itself, after which the symptoms subside, leaving the diagnosis either a speculative one or one which may be properly termed a localized cerebral edema.

General cerebral edema is undoubtedly a frequent accompaniment of many of the somatic disorders. The most common, probably, is a chronic nephritis or the triad of heart, kidneys and blood vessels. These diseases of the circulatory and eliminatory systems are very commonly associated with stupor, convulsions and neuroretinal lesions and papilledemas. When such a combination of symptoms occurs, it is reasonably fair to assume that the mobility of the cerebrospinal fluid has been altered perhaps on account of a change in the circulatory system within the cranial box. When one considers the relation of the arachnoid and the pia to the fluid contents of the skull, it is easy to hypothecate a probable edema of the membranes or of the cortex itself. Then, too, we have learned that tension of the occupied spaces in the head, either from tumors or thickenings, not infrequently tend to crowd the brain into the foramen magnum; and this in itself is quite explanatory of an edematous state, either peripheral or central.

The delicate tissue strands, which bind the pia and the arachnoid together with the perivascular spaces through which the fluids of the brain circulate, may easily become altered, because it is known that the cerebrospinal fluid, although it is partly protective and offers itself as a water bed to the brain, is intimately connected with the venous circulation through small rudimentary sinuses. Moreover, the cranial nerves themselves, notably the first and second, surrounded as they are by perivascular spaces and delicate tissues, offer a convenient outlet for some of the cerebral fluid contents, although most of the fluids escape into the sinuses, whether large or small. One can readily imagine that a general or local infection of any kind which blocks the venous channels may easily lead to an edematous local condition, such as occurs in thrombosis of the longitudinal sinuses or in a congenitally and badly constructed drainage system in the brain, whereby an old hydrocephalus is either lighted up or is followed by a local or a general cerebral edema.

## THEORIES OF EDEMA OF THE BRAIN

E. M. Baehr[1] discusses edema of the brain from a general, as well as a local symptom group, and advances with others the theory that coma, from whatever toxic agent, presents its symptoms through cerebral edema, local or general.

Tauber's theory adds to this a probable acidosis, and incidentally states that these edematous cerebral conditions are not relieved for any length of time by injections of alkalines, as this method is usually a failure on account of the blockade of the cerebral blood stream. Then, too, we have the kidney theory in which the theorist believes that a toxin has developed, but where, when, or how no one knows, although Baehr advances the idea that some toxin developing from the kidney condition may be responsible for a cerebral edema. Baehr asserts, further, that there are four groups of symptoms that occur and are diagnostic of cerebral edema: first, an altered mental state in which the patient varies from a noisy state to one of moroseness; second, a state in which convulsions develop, sometimes accompanied by paralysis, but this is usually temporary. The third group consists of those which come under the heading of comas, and the fourth group in which there is impairment of the functions of the medulla, a poor mechanical condition, accompanied by dyspnea, disorders of the heart rhythm and occasional vomiting and diarrhea.

Mills, in his book, "The Nervous System and Its Diseases," devotes a short section to edema of the brain, and says that in former years it was customary to discuss edema as a separate disease, but that in recent years the tendency has been to consider it only in connection with those systemic diseases and focal disturbances of which it is a feature. Preston, from whom Mills quotes, concludes that among other things edema should receive recognition both from a clinical and a pathologic standpoint; that, although it follows the laws of edema elsewhere in the body, it is considerably modified by the anatomic lymph spaces of the brain and its membranes; that the effused serum may exert mechanical pressure and offer occasion for toxic influences; and that it would be a more common and serious affection, were it not for the free communication which exists between the various lymph spaces as shown by the decided symptoms produced when these cavities are isolated by inflammatory adhesions. Mills mentions, also, that edema of the brain may be partial or general, acute or chronic, and that when it is locally present it is usually due to a local inflammation or pressure from a focal lesion, such as a tumor or an aneurysm. Now that infections have occupied a very large place in our diagnostic outlook, it is even more probable that localized edemas may occur and be followed by a fairly well defined chain of symptoms which resemble in type the symptoms due to the pressure of diseased areas or growths of various kinds. Then, too, in studying the question of fractures, injuries to the head, we find that the penetration wounds, which occur sometimes in such minute forms as to escape detection, may in turn produce a local edema followed by an infection and a breaking down of the membranes of the cortex itself. Under such causative states, edema is probably a secondary condition, but not infrequently an edema may occur without these provocations, but be due to some obstacle in the network of the cerebral veins.

In his book, "The Surgery of the Skull and Brain," L. Bathe Rawling refers to edema following injuries associated with the vasomotor depression and accompanied by engorgement of the superficial cerebral veins with an increase of the cerebrospinal fluid and edema both of the pia-arachnoid region and of the brain itself. Even under concussion, localized edemas may arise, due, probably, to the same obstructive or destructive conditions which occur in the veins or perivascular channels. In referring to traumatic neurasthenia, Rawling further defines edematous conditions of the pia-arachnoid and of the cortex,

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Baehr, E. M.: Lancet-Clinic, 1914, 111, 696-701.

and in exploratory operations he is particularly impressed by the fact that in a large proportion of cases one finds what appears to be a condition of local edema, some fluid beneath the dura mater, and a greater excess of the same in the pia-arachnoid meshwork, and he says that Leonard Hill's experiments show that edema is dependent on chronic vascular changes, arterial anemia, venous congestion, and cerebrospinal and serous accumulation. Not infrequently an epilepsy has for its focal origin an edema of the membranes and, occasionally, of the cortex. In some of these cases the patients are relieved or cured by a decompression operation. Just so are cases of acute maniacal disorders, and those which follow an accident within a few hours or a few days. The acute cerebral edema is not infrequently present and due to a severe grade of vasomotor depression; it is occasionally, although not always, preceded by a cerebral injury. Some of the patients who have been operated on for supposed cortical or subcortical growths show, on removal of the bone and resection of the dura, that cloudiness only is present. The condition of such patients may clear up immediately after the operation, with a clinical or actual recovery, due to the relief of conditions which have produced pressure and temporary or transient edema.

## REPORT OF CASES

CASE 1.—W. L. was admitted to hospital Jan. 5, 1917, with a negative family history. His father, a vigorous Scotchman, is still living. There had been no deaths in the family except that of his mother, who died in early life of pneumonia. There is no history of nervous or mental disorder. He had had some of the diseases of childhood, but never was seriously ill. He denied any venereal contagion, and none was evident by examination. Although a man, aged 30, he had been singularly quiet in his habits, rather more so than is necessary for the average growing individual. In fact, most of his social life had been in the neighborhood of the Sunday school, church picnics and things of that order.

The patient, so far as he knew, had been in good health up to Dec. 23, 1916, about two weeks before his admission to the hospital. He was a hard worker in a bank, but somewhat retiring in his disposition, bashful and unwilling to display his activities. He had had neither worry, strain nor disappointment to contend with, nor any physical disease that he could recall.

December 23, he suddenly realized that his left arm and hand felt queer, as he expressed it—a numb sensation, as if the limb had been cold. This occurred during a busy hour, and he paid very little attention to it. The following two or three days, during which Christmas intervened, he went to work, and soon found that his left hand was clumsy, and he had difficulty in executing the finer movements. He went to a physician, who advised massage, but gradually the limb grew worse, and the left leg became involved, until he was obliged to go to bed for a few days. He had no rise of temperature, and no special pains except the numbness and an occasional catch in his limbs, arm and leg, on moving them. He had no headache, no visual disturbance, and he was not exposed, so far as he knew, to cold, nor did he have a sore throat. During the night, while on a train coming to Minneapolis, his arm grew very much worse, and he had frequent contracting movements in his fingers, hand, wrist and forearm. When he arrived he was unable to use the hand, and he found it very difficult even to extend his fingers in any way. He had no trouble with his voice, nor was there any involvement of any of the cranial nerves. He remembered that on two occasions in December, 1916, he had had transient dizzy attacks, but he had attached no importance to them, as they had not inconvenienced him for any length of time.

His weight was 135 pounds, and there had been no change in that so far as he knew. His nutrition and general development were fairly good, but he appeared rather pale and worn. The pulse was 92, and blood pressure 98 systolic and 62 diastolic, and there was no thickening of the arteries, but the heart sounds were distant and rather poor in quality. There were no murmurs or apparent failure in his heart muscle. He had a pharyngeal reflex, and his tongue, although slightly coated, was a little tremulous and, he thought, a bit swollen. There was no trouble with his bladder or rectum. His teeth were in fairly good condition. There was engorgement in both fundi, and the disks showed a marked cupping, but no edema was noted. The right pupil was smaller than the left and irregular in outline. The right pupil was practically stationary, while the left showed slight reaction. The movements of the eyeball were capable in all directions, but there was a slight nystagmoid movement on his looking to either side. His motor power was impaired on the left side, involving the arm and, to a lesser degree, the leg. There was a slight tremor in extending the hands. There was incoordination in the left arm, but coordination was good in the left leg. His gait naturally had a hitch in the left leg, but it was not very marked. There were no contractions and no atrophy. There was no loss of tactile sensibility on the paralyzed side, but there was a loss to vibration sense in both leg and arm, and his astereognostic sense was markedly impaired on the left side. Joint sense and heat and cold sense were normal. Both of the deep reflexes were double plus, and the reflexes of his upper extremities in both sides were present, with a little overactivity in the left biceps and triceps. There was an overactivity of the Achilles tendon in each heel. He had no clonus, and his abdominal and cremasteric reflexes were present. He had a Babinski reflex in the left foot.

On the day following his admission he received a spinal puncture, in which the fluid presented a rather cloudy appearance, but without increase in pressure. The examination of blood and spinal fluid was negative. After the puncture he became very faint. His pulse went down to 48, and it was several moments before he revived. The asynergy of the upper left limb was very marked, and he complained of increased sensation and drawing or contraction of the arm muscles.

During the four days following his admission, there was an increase in his symptoms, particularly in the joint sensation in the left arm, which involved fingers, wrist, elbow and shoulder. In the foot joint, sensibility was retained and was apparently normal, but vibration sense was impaired in both leg and arm on the left side. Incoordination had increased on the left side, particularly and notably in the left arm. During the course of the examination it seemed as if the right arm showed slight impairment in coordination, but it was not worthy of consideration.

January 12, the patient was removed to a surgical hospital and was operated on the following day. Before the operation he complained that his eyes were tired, but he had no hemianopia or increase in his hyperemia or enlargement of the fundi. The operation was done over the right posterior, parietal region, and was a large bone flap operation.

After resection of the dura, a localized edematous spot, involving not only the pia-arachnoid but the outer layers of the cortex of the brain, was found. This pia-arachnoid accumulation was easily removed and the membrane scarified. The cortex itself was scarified lightly over a reddish area. During the operation the edematous condition cleared up and left the brain in what seemed to be a normal color and condition.

After the usual few days of postoperative symptoms the patient improved very steadily and rapidly. His motor power was improved, and his general mental attitude resumed its normal phase. His vision cleared and the pupils reacted to accommodation, but did not change much in their outline and were slightly irregular, and four weeks after the operation he was practically well. There was no hitch in his gait, and the movements in the left leg, which had prevoiusly been restricted, resumed a normal tone. His station was good, and there was no Romberg sign. He complained of a slight feeling in his tongue, and there was a slight tremor at the end of two weeks. His general coordination was apparently normal, and the motor power in his left arm was approximately what

it is in all right-handed people; that is, the difference between the two was normal. In his sensation he had a restoration of all touch, pain, joint and vibration sense, which showed a very marked change from the condition at the former examinations. His astereognostic sense was normal. The reflexes of the upper extremity were equal on both sides and approximately in a normal condition. Since his operation in January, 1917, he has been heard from on several occasions. He has resumed his work as assistant cashier in a bank and has used his right and left arms with equal facility. In a recent letter he has expressed himself as feeling perfectly well and very anxious to get into Army service; but, on account of his osteoplastic operation and the condition found there, he was discouraged from entering the service.

CASE 2.—H. G., aged 25, admitted to the hospital Jan. 6, 1914, was a salesman, whose family history was from all points negative. He had had measles, mumps and erysipelas when a child. The father gave a history that when the boy was 5 months old he was in a runaway and was knocked senseless, but at that time no evidences of fracture or depression of the skull were found. The patient had begun to drink when he was 12 years of age, and had continued his drinking from that time up to the time he was seen in the hospital. When he had been a young boy he had been very difficult to manage and had shown all sorts of tendencies that were more or less of the defective type. Like many other boys, perhaps, he had been guilty of petty thieving from his home and his father, and sometimes would appropriate a horse or motor and go off for a day. During the time when the boy was not drinking he was extremely likeable and very industrious. He always slept well, and there were no evidences of any disorder of mentality after he had passed the age of puberty. There was some reason to suspect that he had a thick skull, although there could be no diagnostic symptoms of this given. The idea was that he was possibly defective, and an examination of his head, after it was shaved, showed some minor depressions over the parietal and occipital region. He was subjected to a double subtemporal decompression. Three days later he had a convulsion, and within a week he ran away from the hospital, but came back willingly and smilingly. From that time on his recovery was rapid. He came under observation again six months later. He came up to the family's standard physically and mentally, and they said that since the operation he had had no desire for alcohol. He later married, and has been well ever since.

CASE 3.—E. P., aged 18 years, had a father and mother living. The only history of any moment obtainable was that the paternal grandfather had epilepsy late in life. This boy was well until he arrived at the age of 14, when in a fall he struck on his head. He had been unconscious for an hour, complained of headaches afterward, and was nervous from that time continuously; but when he was able to avoid excitement he did very well up to within a month of his appearance in Minneapolis on Jan. 19, 1912. Then he began to have attacks of unconsciousness, which occurred with great frequency. During these attacks, or after them, he was evidently laboring under some hallucinations or became frenzied so that he threatened to kill people for minor causes. Before coming to Minneapolis he had spent a month in the State Hospital for the Insane at Rochester, Minn., where he had been observed, but was reported unimproved. His family thought he had an indentation of the skull at a point where he struck in falling, but it was not easy to map out, and when he was operated on later there was no evidence of fracture. During his attacks of unconsciousness he resembled the average epileptiform patient, except that there were no movements or frothing at the mouth. But he always complained of a headache and he was inclined to sleep after the attack. In one of his attacks before he went to the state hospital he had wandered off into the fields and had to be returned to the house and watched. The history further brings out the fact that three months after his accident, which was in 1907, he had had a few of the present type of attacks of unconsciousness.

Without any localizng symptoms in view, without any findings in the eyegrounds and without any evidence of any involvement of other cranial nerves, and purely because of the attacks he had, it was assumed that he had a hard skull and that he probably had some pressure symptoms that might be relieved by an operation. He was in a peculiar state of mind —excited, alert and inclined to irritability. All of his reflexes, both superficial and deep, were extremely active.

Jan. 29, 1912, he was operated on. A scalp flap was raised on top of the head with an anterior attachment, and two trephine openings of an inch in diameter were made on either side of the median line, just behind the frontal parietal suture. The skull was very dense and very thick. The openings made by the trephine were enlarged with a rongeur and revealed a thickened dura, which was opened and turned back. The pia-arachnoid showed a cloudy thickening and resembled a cyst between the membranes, but this prevailed in all parts of the opening. These filled areas and edematous places were scarified thoroughly, and the brain was swabbed with 1/1000 mercuric chlorid solution. The dura was left open and tucked under the scalp for permanent drainage. A thorough exploration of both the inside and outside of the dura for two inches around the opening was made, but nothing was discovered in the way of a tumor or any other disease.

Perhaps two of the interesting points about this case were the clearing of the grayish membranes and the relief of the edema when the skull was opened. We watched this process in each opening, and before the operation was completed both of the areas were free from edema and showed the normal pink surface of the cortex.

This man made a quick recovery and has remained free from either attacks or mental disorder ever since.

## CONCLUSIONS

1. There are undoubtedly many cases of local or generalized cerebral edema that are unsuspected.

2. Patients who give a history of an injury, however remote, provided it is localized, may have a local cerebral edema from pressure and from a fracture of the internal table of the skull, or from simple concussion of the brain, or a blow on the head, with or without infection.

3. Occasionally cases exhibiting focal symptoms may be wholly due to a localized edema, and too few cases of epilepsy, acute and violent but with transitory mental excitements, justify an exploration for a suspected edema.

4. There are many cases of hard, thick skulls, obstructing free circulation in the pia-arachnoid and in the cortical veins and perivascular spaces, which may be temporarily or permanently relieved by decompression operations.[2]

## ABSTRACT OF DISCUSSION

DR. FRANK P. NORBURY, Jacksonville, Ill.: I would like to ask Dr. Jones how he excluded the cardiovascular renal states in the first cases reported. I have a case under observation now, and I think it is wholly a cardiorenal condition. Whether we are justified in opening the skull in a cardiorenal case is a question I would like to have answered.

DR. ANDREW L. SKOOG, Kansas City: Referring to the point relative to edema causing the focal type of epilepsy, there still remains a certain number of cases with an epileptic syndrome in which we do not know the etiology. It is possible that the edema of the brain is the cause of this disturbance primarily. On the other hand, in a large number of cases of edema of the brain we do not know the cause. Possibly they are due to some obscure intoxication of the cortex, which causes either focal or generalized edema of the brain. In regard to treatment, I see no objection to doing a decompressive operation in some cases. However, I think we are justified in first trying to relieve these patients by removing cerebrospinal fluid, possibly once, possibly two or three times. I have had several of the cases, in which I believe the results were just as good

2. Many of the compilations embodied in the first few paragraphs are from Keen's "Surgery" and accredited to Cushing and Bordley, 7, 728.

by resorting to such a simple procedure, as might have been obtained if a decompression operation had been performed.

Dr. Albert E. Sterne, Indianapolis: It depends entirely on what we mean by edema of the brain. We should not use that term unless we mean a cellular encephalitic process, a serous encephalitis. We should distinguish between edema and any form of hydrocephalus. Furthermore, in certain conditions, an encephalitic process frequently arises in the brain no matter what the etiology may be, whether it is traumatism, tumor, infection, exhaustion, sunstroke, or due to a drug or syphilis. Under those conditions the only thing the brain cell can do, primarily, is to swell. This is the preliminary stage of an inflammatory process. Then, if by the term edema of the brain, Dr. Jones means such a process as that, I would subscribe to such a conception. But I do not believe I should consider that edema of the brain arises in a purely local manner. Without doubt there can be intensification of the general swelling in a given territory, but I do not believe it arises in a circumscribed fashion and remains circumscribed.

Dr. Joseph Byrne, New York: I confess to having doubts as to the localization in the first case Dr. Jones reported. There are a few inconsistencies in the sensory manifestations. For instance, motor power and stereognosis were defective in the left hand, but the author did not specify as to these functions in the right hand. I would ask just what the condition was in that respect. If the left hand only was involved, the trouble probably would be in the commissural fibers. The second point is as to the question of vibration. There are two elements in vibration: the affective or thalamic element and the critical or cortical element. These two things should be differentiated sharply. The specific element of heat as such, as well as the element of rapidity in vibration, implies comparison and is to that extent critical or cortical, whereas the pleasant or unpleasant feeling of heat or vibration (affective element) is mediated by the thalamus. The question of edema has not been settled satisfactorily to physiologists. It is the problem of physiologists to-day just as it was many years ago, Dr. Martin Fisher's work to the contrary notwithstanding.

Another question that comes up is the mechanism of cerebral nutrition. I do not want to be overcritical, and it may be merely a play on words, but there are no lymph vessels in the brain tissue or spinal cord. There are perivascular spaces but no lymphatics. Then, another question comes up as to the rôle of a very important structure the function of which has not been defined clearly. The neuroglia is in close anatomic relation with the perivascular spaces on the one hand and with true neural tissue on the other, and hence may play an important rôle in neural nutrition. We are a long way from having a true conception of the mechanisms of cerebral nutrition.

I differ somewhat from Dr. Jones as to diagnosis and localization, although I agree with him as to his method of treatment. Our practical work in cases like this has been most successful. I believe that in all these cases a decompression on one or the other side has great influence in restoring nutrition and function.

Dr. Bayard Holmes, Chicago: I have been interested in the possibility of reducing edema of the brain on account of its occasional appearance as a terminal factor in dementia praecox. When the two cases that were reported by Nissl came out I began to look for some method of reducing the increased intracranial pressure and edema which seemed to be present in those cases, and found that when there was a high intraspinal pressure, which presupposed, perhaps, a high intracranial pressure, it could be reduced by the intravenous injection of large quantities of a concentrated solution of glucose, the concentration being about 33⅓ per cent. or higher. And I wondered whether in such instances as those reported a concentrated solution of glucose might not be useful in reducing edema of the brain, perhaps anticipatory of any surgical interference. In the few instances wherein we used the intravenous injection of a concentrated solution of glucose the intraspinal pressure went down and remained only a short time, not to exceed twenty-four to forty-eight hours, when the intraspinal pressure rose to the high point from which it had come. In most cases we found the pressure to be from 150 to 380 mm. of water, and six hours after injection of the glucose it had fallen, in one case, to 40 and in another to 80 mm.

Dr. William A. Jones, Minneapolis: The discussion has brought out the points I wished to emphasize. I think there is absolute justification in the decompression of many people who have ill-defined conditions in the cortex and meninges, and I believe we will find many localized edemas, from whatever cause. One case of mine might have been a cardiovascular renal case. At all events, the patient had the condition, and the swelling was large enough so that it was circumscribed and scarified, relieving the symptoms, and the man recovered, though he had exhibited all the focal symptoms described. He may have another attack later. The question of epilepsy is very important as to the possibility of some local troubles being responsible for the epileptiform attacks, and those cases may safely be decompressed, and I think many of them would be improved if not relieved entirely. As Dr. Sterne suggests, I believe there is a swelling of the cells which surround a certain definite area in the pia-arachnoid and unquestionably in the localized territory of the cortex, but a swelling here can be relieved just as well by decompression and scarification as it can elsewhere. The astereognostic sense was limited and localized and defined very definitely. It was carefully worked out and found to have absolutely disappeared within two weeks after operation. I think that proves we struck the right point, because an exudative and perhaps inflammatory process was found, though typically edematous in appearance.

## ETIOLOGY OF THROMBO-ANGIITIS OBLITERANS (BUERGER) *

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On the basis of extensive clinical observation and a variety of laboratory examinations of patients suffering from the so-called thrombo-angiitis obliterans (Buerger), some points that may prove of interest are presented herein as tentative conclusions. They may have to be revised from time to time as our knowledge of the disease deepens.

Chemical analysis of the blood of these patients has shown that:

1. There is no retention of waste nitrogenous constituents.

2. There is no marked decrease in the alkaline reserve of the blood, as demonstrated by the carbon dioxid combining power of the blood plasma (method of Van Slyke).

3. In all the cases thus far studied, the ingestion of 100 gm. of glucose, after a brief fasting period, has produced hyperglycemia.

This observation shifts the whole question of the etiology of the disease to new ground, and the old designations appear no longer appropriate.

For the present I would propose naming the disease "glycophilia," and shall so call it in the course of this paper. The similarity of the name to "hemophilia" is intended to point to sex limitation and other obscure features of the disease.

### GENERAL CHARACTERISTICS OF THE DISEASE

The disease usually develops soon after puberty, rarely after the fiftieth year.

Abuse of tobacco, particularly excessive smoking of cigarets, may occasionally be a contributory etiologic factor, though some patients afflicted with this disease

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

have claimed they are very moderate cigaret smokers. The disease is a chronic one, usually extending over many years. Periods of activity may alternate with periods of quiescence.

TABLE 1.—CHEMICAL ANALYSIS OF THE BLOOD

| Case | Age | Red Blood Cells | Platelets | Wassermann | Milligrams, 100 C.c. | | | | | Chlorids, per Cent. | CO2 Comb. Power, Vol. per Cent. | Sugar, per Cent. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nonprotein Nitrogen | Urea N | Uric Acid | Creatinin | Cholesterol | | | |
| M. K.* 2853 | 33 | 6,170,000 | ..... | Neg. | 25 | 12 | 1.8 | 2.0 | 188 | .... | 67 | 0.138 |
| M. B.* 1043 | 67 | 5,500,000 | ..... | Neg. | 30 | 14 | 1.0 | 0.5 | 188 | .... | 65 | 0.129 |
| V. M.* 2022 | 39 | 5,800,000 | ..... | Neg. | 27 | 12 | 1.5 | 0.4 | 221 | 0.52 | 70 | 0.136 |
| M. S. 29 | 40 | 6,170,000 | ..... | Neg. | 22 | 11 | 1.9 | 0.4 | 221 | 0.57 | 68 | 0.138 |
| A. S. 952 | 47 | 5,400,000 | 544,000 | Neg. | 25 | 12 | 2.1 | 0.8 | 214 | 0.62 | 57 | 0.102 |
| J. C. 1272 | 44 | 5,000,000 | 720,000 | Neg. | 25 | 12 | 3.1 | 0.6 | 186 | 0.56 | 61 | 0.116 |
| W. R. 1610 | 39 | 5,500,000 | 436,000 | Neg. | 25 | 12 | 2.0 | 1.0 | 125 | 0.56 | 48 | 0.110 |
| I. K. 1912 | 43 | 6,814,000 | 404,000 | Neg. | 22 | 10 | 1.9 | 1.0 | 150 | 0.62 | 53 | 0.106 |
| C. M. 2132 | 37 | 7,200,000 | 324,000 | Neg. | 25 | 12 | 1.5 | 0.8 | 186 | .... | .. | 0.110 |
| M. | .. | 5,326,000 | 544,000 | Neg. | 25 | 11 | 2.9 | 1.0 | 214 | 0.70 | 57 | 0.100 |
| H. F. | .. | 5,100,000 | 288,000 | Neg. | 30 | 14 | 2.9 | 1.0 | 215 | 0.70 | 78 | 0.170 |
| M. G. 3454 | 23 | 5,884,000 | 404,000 | Neg. | 27 | 13 | 1.2 | 0.8 | 200 | 0.69 | 71 | 0.116 |
| L. M. 2468 | 34 | 5,500,000 | 436,000 | Neg. | 25 | 11 | 2.5 | 0.8 | 188 | 0.68 | 67 | 0.105 |
| I. B. 2468 | 41 | 4,884,000 | 312,000 | Neg. | 25 | 11 | 2.0 | 0.8 | 188 | 0.68 | 65 | 0.168 |
| I. A. 2288 | 40 | ..... | ..... | Neg. | 25 | 12 | 1.5 | 0.5 | 200 | 0.58 | 65 | 0.10 |

* Blood cultures negative.

The early symptoms are: pains in the calf of the leg on walking (intermittent claudication); spontaneous, uncontrollable pains in the toes, feet and legs, especially during the night, when in horizontal posture. Later on, the arteries usually become occluded and spontaneous gangrene develops. The upper extremities also may become affected.

### GENERAL CHARACTERISTICS OF THE PATIENTS

All the patients we have had have been males; women seem to be immune.[1] They were all Jews of the poor classes who had emigrated from Russia, Poland, Galicia or Roumania—countries whose population is known to be especially subject to disturbances of sugar metabolism. This particular type of poor immigrant Jew has for ages been living under most insanitary conditions, closely confined and forced into intermarriage. They are hereditarily heavily encumbered; amaurotic family idiocy is specific among them; diabetes is a frequent disease; at one clinic it was associated with tuberculosis in 60 per cent. of the cases, against from 6 to 27 per cent. in other countries than those named above, according to general diabetes statistics. In one of my recent cases Irish descent was claimed. Investigation disclosed an Irish mother and a Polish Hebrew father; the son (my patient) had been left in ignorance of his father's descent.

Patients afflicted with a similar trouble are said to have been found also among the Swedes in Wisconsin and Minnesota (Ochsner), among the Japanese (Koga), in Cuba and in Persia, but the identity of the disease found in these countries with that of these Jews has not been proved.

The majority of the patients have a high red blood count and proportionately high count of blood platelets.

In trying to find a donor for blood transfusion in these individuals, three years ago, it was seen by the serologist of our hospital, Dr. A. L. Garbat,[2] that they all belong to a special class.

Almost all the patients seen by us have flatfoot.

### INVESTIGATION OF THE DISEASE

On previous occasions I have given expression to my conviction that the disease under discussion would turn out to be a blood disease. I determined to get more light on this question, if possible. Therefore, beginning with February of this year, during my service at the Lenox Hill Hospital (formerly the German Hospital) of New York, I arranged for the admission of a limited number of these patients and had their blood examined in every conceivable direction by Dr. Adolf Bernhard, the pathologic chemist of the hospital, to whom I am greatly indebted for his untiring cooperation (Table 1). After a series of negative results in various directions, we found a disturbance of the sugar metabolism.

The sugar tolerance in glycophilia has been studied in fifteen patients up to the present time. The results thus far obtained are embodied in Table 2.

The concentration of sugar in the blood of fasting normal individuals varies from 0.08 to 0.10 per cent. When 100 gm. of glucose are ingested, the sugar concentration of the normal individual does not rise above 0.15 per cent. at the end of one hour, and by the end of the second hour the concentration of blood sugar has again returned to the normal or to a somewhat lower level. If the concentration of blood sugar one hour after the ingestion of the glucose reaches a higher level than 0.15 per cent., hyperglycemia exists.

This hyperglycemia may be accompanied by glycosuria. In the cases studied, the fasting level of the blood sugar varied between 0.096 and 0.168 per cent.

TABLE 2.—CARBOHYDRATE TOLERANCE TEST

| Case | Age | Blood Sugar before Glucose, per Cent. | Blood Sugar 30 Min. to 1 Hr. after 100 Gm. Glucose, per Cent. | Blood Sugar 2 Hrs. after 100 Gm. Glucose, per Cent. | Urine before Glucose | Urine after Glucose |
|---|---|---|---|---|---|---|
| 1. M. B. 1043 | 42 | 0.129 | 0.180 | ..... | Neg. | Neg. |
| 2. V. M. 2022 | 39 | 0.136 | 0.212 | ..... | Neg. | Neg. |
| 3. M. S. 29 | 40 | 0.138 | 0.248 | ..... | Neg. | 1st hr. trace<br>2d hr. trace<br>3d hr. trace |
| 4. A. S. 952 | 47 | 0.102 | 0.168 | 0.168 | Neg. | |
| 5. J. C. 1272 | 44 | 0.116 | 0.180 | ..... | Neg. | Neg. |
| 6. W. R. 1610 | 39 | 0.110 | 0.180 | 0.170 | Neg. | 1st hr. trace<br>2d hr. trace<br>3d hr. trace |
| 7. I. K. 1912 | 43 | 0.106 | 0.180 | 0.150 | Neg. | Neg. |
| 8. C. M. 2132 | 37 | 0.110 | 0.212 | 0.0.6 | Neg. | 1st hr. neg.<br>2d hr. trace |
| 9. M. | .. | 0.100 | 0.174 | 0.100 | Neg. | Neg. |
| 10. H. F. | .. | 0.170 | 0.172 | 0.112 | Neg. | Neg. |
| 11. M. G. 3454 | 23 | 0.116 | 0.190 | 0.124 | Neg. | Neg. |
| 12. L. M. 2468 | 34 | 0.105 | 0.138 | 0.215 | Neg. | 1st hr. neg.<br>2d hr. trace |
| 13. I. B. 2468 | 41 | 0.168 | 0.192 | 0.126 | Neg. | 1st hr. neg.<br>2d hr. large amt. |
| 14. I. A. 2288 | 40 | 0.100 | 0.174 | 0.128 | Neg. | 3d hr. trace<br>1st hr. trace<br>2d hr. 1.5% |
| 15. S. S. 3606 | 51 | 0.096 | 0.222 | 0.192 | Neg. | 3d hr. trace<br>1st hr. 0.6%<br>2d hr. 1.8% |

1. In a recent case hyperglycemia was also found in a Jewess who complained of continuous cold sensations in her feet and showed absence of pulse in both peroneal arteries.

2. Meyer, Willy: Conservative Treatment of Gangrene of the Extremities, Ann. Surg., 1916, 63, 280.

In seven cases the concentration of blood sugar before the ingestion of glucose was higher than the normal figure, varying between 0.116 and 0.168 per cent. In other words, some of these patients come to us with a certain degree of hyperglycemia, without having taken the glucose.

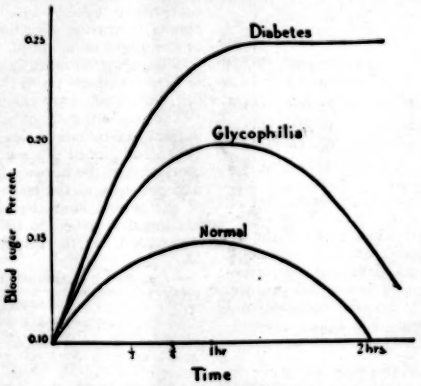
One hour after the ingestion of 100 gm. of glucose, the blood sugar concentration in these patients varied between 0.138 and 0.248 per cent., whereas in the normal individual, as already stated, it does not rise above 0.15 per cent. Two hours after the ingestion of the glucose, the blood sugar concentration varied between 0.10 and 0.215 per cent.

One case, M., No. 2498, did not show a *marked* increase in blood sugar concentration after the ingestion of glucose, it being 0.138 per cent. one hour later. However, this case showed the highest concentration of blood sugar after two hours, at which time it was 0.215 per cent. It is the only case in our series that shows a higher concentration of blood sugar at the end of the second hour than at the end of the first hour.

In six other cases the blood sugar at the end of the two hours did not reach the original level obtained before the ingestion of glucose.

The results of these investigations indicate some disturbance in the carbohydrate metabolism of the patients. The studies are being continued in our hospital, and their progress will be reported from time to time.

The general clinical aspect of these cases in many respects shows such a close similarity to what we are accustomed to see in cases of diabetes mellitus that their classification as "near diabetics" appears justifiable, and I fully expect to find this diagnosis verified after the study of a greater number of cases.




Comparative blood sugar curves after ingestion of 100 gm. of glucose.

The characteristic difference in the sugar tolerance of healthy individuals, glycophiliacs and diabetics is diagrammatically shown in the curves in the accompanying chart.

The probable cause of hyperglycemia in glycophilia, and also of the erythrocytosis which is frequently found combined with it, I expect to take up soon in another communication.

The chemical blood analyses of Dr. Bernhard appear to justify the above proposed change in the nomenclature of this trouble. "Thrombo-angiitis obliterans"—the name given it by Dr. Leo Buerger of New York—implies a thrombus formation, due to inflammation of the blood vessels. I do not believe, however, that the occluding masses within the small arterial blood vessels are really thrombi, nor do I believe that an inflammatory process of the blood vessel walls plays a rôle from an etiologic point of view.

I am rather inclined to explain these masses as originally being a conglomeration of red blood corpuscles due to erythrocytosis and stasis, the latter being a sequence to the increased viscosity of the blood. They may appear to the eye of the pathologist, macroscopically and microscopically, as thrombi. Yet, I feel that microscopic lenses of higher power than we know at present will probably show them to be something different.

This is also the reason why the name "thrombophilia," which I recently proposed[3] for this disease, has been discarded.

## CLINICAL OBSERVATION AND TREATMENT

In my service at the Lenox Hill Hospital five beds were set aside in the early part of this year for the study and treatment of glycophilia. They have been constantly occupied by these patients, and for weeks at a time by the same men. At certain periods it was necessary to increase the number of beds to seven. I feel the need of at least fifty beds for this purpose. But to have set aside more than from five to seven would have crippled the service.

In order to handle with these limited facilities the greatest possible number of individuals, I have endeavored to shorten the time required for their treatment at the hospital. Out of the first empiric steps and the feeling of our way, a sort of routine has gradually developed, as follows:

On the patient's admission to the hospital a complete chemical analysis of his blood is made, also a complete blood count, platelet count and Wassermann test. Then the sugar tolerance test is carried out. According to our present view, a positive result places the patient in the glycophiliac class, and he is retained for treatment.

In order still further to cut down the time required for preliminary examinations and to save several days of hospital attendance, the blood tests and the sugar tolerance tests have of late been made in an ambulatory fashion at the dispensary. The work there has been placed in charge of a special assistant, Dr. M. Greenberger.

A most conspicuous feature in the picture of glycophilia seems to be a considerable dehydration of the tissues. A glycophiliac may be compared to a flower withering for the want of water. Our treatment, therefore, consists in supplying an abundance of water to the system.

From the start, the treatment is intensive. It aims at producing quickly the highest possible degree of hydremia. This is obtained by the simultaneous use of duodenal flushing with the help of Einhorn's duodenal tube, as suggested by McArthur[4] of Chicago, combined with hypodermoclysis. In duodenal flushing, from 8 to 10 quarts of Ringer's solution, or a

3. Report of Surgical Section, New York Academy of Medicine, Med. Rec., New York, 1917, **92**, 262.
4. McArthur, L. L.: Surg. Clinics, Chicago, 1917, **1**, 499.

solution of sodium bicarbonate (from 15 to 30 gm. of the salt per day) of body temperature, are given by the rapid drop method within twenty-four hours. Ringer's solution or a solution of sodium bicarbonate seems to have a better effect than plain water.[5] In duodenal flushing the actual absorption of the water into the system by way of the blood has been proved by the fact that about as much urine is discharged as water is poured into the intestinal tract.

More recently we have made the patient buy the tube before he enters the hospital. Here he is taught its use, and as soon as he has learned it, he is sent home to continue the treatment there for from three to five weeks, provided it is a mild case; if he represents a more serious case, he remains at the hospital for additional hypodermoclyses. We are now about to transfer to the dispensary the giving of hypodermoclyses, and we are arranging for three treatments per week for each patient, under special supervision. Of course, only patients who are able to walk can be subjected to such ambulatory treatment.

Hypodermoclyses are given with the maximal quantity of Ringer's solution the patient can endure, and repeated daily, if possible. Intravenous infusion of Ringer's solution is not resorted to, because the aim is the attainment of the greatest possible penetration of fluid into the body tissues. Extensive literature shows the latter to remain quite dry when the liquid is introduced intravenously.

The injection of such quantities of fluid is made principally for the purpose of reducing the viscosity of the blood and thus enable it to pass again through the narrowed arterial channels.

During this treatment the condition of the patient occasionally runs the following course: The incessant, most excruciating pains, not controllable by any other means, decrease in intensity. At first only a few hours of sleep can be enjoyed by the patient while sitting upright, for the night, in a chair. Soon he goes to bed and keeps the affected leg hanging out; then he risks lifting it to a horizontal posture; eventually he rests comfortably in bed, free from pain.

The foregoing refers to patients without local gangrene, either of the superficial or deeper tissues. If gangrenous lesions of the skin and subcutaneous tissues are present, it has been found best, as regards saving time in the treatment, and particularly in alleviating the pain, to touch the ulcerative spot *lightly* with the actual cautery. The sealing of the hypersensitive sore does away with a good deal of pain. Under the scab, often healthy granulations form which tend to more rapid healing. Sometimes the eschar stays on until cicatrization of the formerly obstinate wound is completed. The light, dry gauze dressing is changed as little as possible during the time that the artificial hydremia is being maintained.

In the majority of cases the deeper tissues, particularly periosteum and bone, are affected. Often it will be seen that what at first glance appeared to be a paronychia is a necrotic osteoperiostitis of, say, the third phalanx of the toes or fingers. This may have the tendency to invade the central cavity of the bone, and later involve the interphalangeal joint; or it may be that a seemingly superficial gangrene, for instance, over the os calcis laterally or at the calx itself, runs straight down to the bone. If conservative treatment is at all contemplated in a case like this, it is unwise to treat these wounds with all kinds of dressing, until the demarcation line has formed. Circumcision of the necrotic tissue with a knife, and the use of the actual cautery on the surface of the fresh wound, are better. Although with the latter procedure it will take a long time before the wound heals, the patient's pains are often much lessened.

When it comes to operating—enucleation or amputation—I prefer to undertake the operation after the patient's system has been thoroughly permeated with fluid. It may then be sufficient to enucleate or amputate a toe or a finger, where formerly larger parts of the extremity had to be sacrificed. In other cases, amputation below the knee will give a good result, while without the preceding hydration of the system, amputation above this joint would probably have been required. It almost seems as if this temporary saturation of the system with fluid would enable us to operate more peripherally, with greater and more frequent success, than could be obtained formerly. Further experience is needed definitely to determine this point. Probably the degree of improvement in the circulation and the condition of the blood will differ in different individuals.

Without doubt there are abortive cases of the disease.

A most remarkable consequence of the treatment in some cases has been the restoration of pulsation in arteries over which, before the treatment, no pulse could be felt. Koga observed the return of almost normal pulse in ten out of thirteen Japanese cases, after a course of hypodermoclysis. I have seen it in only a few instances. Still, I have seen it, and the mere fact that pulsation does return in previously pulseless major arteries—or, expressed in other words, that occluded arteries become again patent, and within a comparatively short time—makes me look with doubt on the theory that ascribes the occlusion to thrombosis. It rather inclines me to attribute the occlusion to stasis, as far as the arteries are concerned. In the veins the occlusion is probably a true, though secondary, thrombosis.

Patients without gangrene are discharged as soon as their pains have subsided. When this goal is not reached, ligation of the deep femoral vein below Poupart's ligament, or amputation, is performed. In spite of one very good result of arteriovenous anastomosis between the femoral vessels in Scarpa's triangle, in one of my patients, aged 31, I could not make up my mind thus far to have this operation take the place of a regular intermediate step, before amputation is resorted to.

However, be it specially emphasized, none of these patients are cured; they are merely improved, whether or not operation is done. In either event, their trouble returns sooner or later. This, at least, has been the rule so far. Of course, there may be fortunate exceptions. The reason for this fact is that the underlying cause of the disease is as yet unknown, and until it is known, we cannot hope to bring more than temporary relief to these patients. Our treatment, conservative as well as radical, thus far has been only palliative. True, after amputation of the leg, the old tormenting pains subside as by magic; but the disease goes on nevertheless. Frequently the other extremity after a while shares the fate of the one amputated, and still

5. In making up Ringer's solution we have employed the tabloids furnished by the firm of Burroughs Wellcome & Co., dissolving two tabloids in 1 pint of water. Each tabloid contains: calcium chlorid, 0.05 gm.; potassium chlorid, 0.05 gm.; sodium chlorid, 2.25 gm.; sodium bicarbonate, 0.025 gm., and glucose, 0.25 gm. One tabloid dissolved in 250 c.c. of water forms Ringer's solution.

later on, the upper extremities may be attacked. Proof of the continuance of the disease after the discharge of the patients, with their symptoms improved and their wounds healed, is the fact that they are usually unable to do much walking without getting pains and becoming excessively tired.

We put these discharged patients on a mild antidiabetic diet and advise them to take up work that will not unduly tax the muscles of the respective extremity, although the latter advice is usually difficult to follow for this class of mostly poor patients. They are further instructed to report back for blood examination at varying intervals, according to conditions present.

Much work remains to be done to clear up this fascinating affliction. I am convinced that it is primarily a disease of the blood of endocrine origin—due principally, perhaps, to a disturbance in the normal function of the suprarenals—and not a disease of the blood vessels. Should we succeed in tracing it back to its original cause and then find a way of correcting the disturbance, not only untold suffering would be spared these pitiful patients and their families, but vast sums of money saved to the country at large.

## CONCLUSION

Although the number of cases studied is small, the results thus far obtained definitely show that there is something defective in the carbohydrate metabolism of these patients.

Regarding the theory I have advanced above, that one or more glands of internal secretion are pathologically affected and cause the disturbance, I fully realize that it rests as yet on slender support. But I take kindly to this theory, because it tends to remove the disease from the realm of the mysteriously obscure, and brings it into the purview of an already thoroughly explored field of medicine, thus making available for its elucidation a vast treasure of experimentation already laid down in literature. However, even with this help, the task of finding a path through the many contradictory observations and apparent inconsistencies is altogether too big for individual effort, and recognizing this to the full, it seemed to me best to make known at this time what we have found thus far and to urge the cooperation of all those who are called on to treat this class of patients.

The best way to make real progress in this matter would be to get some philanthropist interested in the subject and induce him to equip liberally and endow a commission, composed of specialists from the various fields of medicine involved and having for its sole object the study of glycophilia.

700 Madison Avenue.

## ABSTRACT OF DISCUSSION

Dr. V. L. Shrager, Chicago: It is very sad that this condition is not better understood, particularly clinically. It does not matter so much that we do not know what the cause is at this time. At Mount Clemens, where I have been a patient myself, many patients were treated for rheumatism when they had only the early stages of thrombo-angiitis obliterans. Flatfoot is frequently associated with angiitis obliterans, which suggests an anatomic theory. Oppenheim and a few others have found that these patients have a congenital smallness of the blood vessels. Many of them, whether treated or not, develop epigastric distress and excruciating pain. I have seen cases of spasm of the epigastric region entirely ignored. The angiospasm is very much the same as a cramp in the calf of the leg. I must say in defense of the Ringer solution that while it does not modify the disease, it is a blessing to the patient. I have never known any of them that did not get absolute relief. I have extended the use of Ringer's solution to trophic diseases of the foot and other diseases. I have treated several cases of diabetic arterial changes, and I have found that Ringer's solution gives them a great deal of relief.

Dr. Willy Meyer, New York: Dr. Buerger has made careful pathologic studies of the type of the blood vessel occlusion. I so far would disagree with him with reference to the interpretation of his findings. Our laboratory examination has shown the hyperglycemia often before the ingestion of glucose, surely soon after. I believe that these patients are "near-diabetics." Such assumption will explain easier also the cases with open blood vessels and gangrene, as in diabetes. From the standpoint of symptomatic treatment we can best improve the condition of these patients by pouring as much fluid into their system as possible, particularly by using the duodenal tube. Nobody can drink 8 to 10 quarts of fluid a day for a number of weeks. That the fluid is actually absorbed and not to greatest extent discharged by the rectum is shown by the large amount of urine voided by these patients. As a matter of course, some fluid is retained in the system.

Regarding surgical treatment, it seems unwise in patients with superficial gangrene to wait for further developments. We should act immediately and touch the gangrenous spot lightly with the cautery; under the eschar the wounds often heal. If we remove the nail in a patient with what appears to be a paronychia, we will often find under the same an osteoperiostitis, not infrequently combined with osteomyelitis, of the third phalanx, which seems to be a reactive inflammation to localized bone gangrene, and if treated properly will greatly relieve the pain. A most interesting observation, which will be valuable if corroborated by further clinical data, is, that if we pour a large amount of liquid into the system of these patients, a required amputation can likely be done more peripherally; in other words, we may with it, for instance, more often be enabled to amputate below the knee rather than above the knee without recurrence of gangrene. If we should be able to find the cause of this disease and correct it, certainly great expense would be saved to the community at large, not to mention the unspeakable suffering of these patients and their families. For the trouble is comparatively frequent, especially in the large centers of our country, and those stricken by the disease always spend months and years in hospitals.

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**Mortality Among Women from Causes Incidental to Child-Bearing.**—Between the ages of 15 and 44 the diseases and conditions incidental to child-bearing account for more deaths of women than does any other disease or class of diseases except tuberculosis. This statement is made by Louis I. Dublin, of the Metropolitan Life Insurance Company, in an article on a study of mortality among women from causes incidental to child-bearing, and it is based on the records of death of a large number of insured women in the industrial department of the Metropolitan company. During the six year period, 1911 to 1916, covered by the study, it is estimated that 14,694,260 insured women between the ages named were under observation. From this number 10,056 deaths occurred from diseases and conditions incident to childbirth, in the ages between 15 and 44. Most important of these diseases was septicemia, which was responsible for 4,321, or 43 per cent., of the total. Albuminuria and convulsions caused 2,654, or 26.4 per cent., of the total. It will be seen that these two conditions accounted for 69.4 per cent. of the total deaths from causes incident to childbirth. The figures relating to mortality on account of childbirth in the Metropolitan company are steadily improving, due, as is said, to the extension and improvement of the prenatal and postnatal nursing service inaugurated in 1909. In 1916, of a total of 160,843 women policy holders visited during illness, 41,572, or 25.8 per cent., were cases resulting from diseases or conditions incidental to the puerperal state. In the period between 1911 and 1916 the death rate among white policy holders from these causes fell 10.7 per cent., the decline in mortality from septicemia being 17.3 per cent.

# RELATIONSHIP OF FOCAL INFECTIONS TO CERTAIN DERMATOSES

## FURTHER OBSERVATIONS *

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The present paper is in a way a continuation of a former paper,[1] and a review of the conclusions presented then in the light of further observations and experience. We were very much pleased when we were asked to choose this subject, for it is a field in which we feel ourselves comparative pioneers. As far back as 1905, we reported[2] cases which we considered due to hematogenous infection of the skin. Of course, we lay no claim to priority in this field; it is very well known that, according to Gosse,[3] Mackenzie called attention to the connection between rheumatism and erythema nodosum in 1886, and since that time numerous references have been made to a connection between rheumatic infections and various dermatoses. However, it was not until the epochal work of Billings and Rosenow that we really had a base of facts from which to work. With the proved relationship of focal infections to more or less widely disseminated infection throughout the body we found ourselves in a better position to prove that the skin may suffer from such infections as well as the joints, muscle, heart, nerves, and other structures.

Now if we dermatologists have one fault, it is that in our enthusiasm, in our desire to clear up the many problems of diagnosis and etiology, in our efforts to place our treatment on a really scientific and rational basis, we have more than once gone to the extreme in taking up new fads and theories. How often what we have acclaimed one day we have had to renounce the next! Theories have come and gone — uric acid diathesis, autointoxication, trophoneuroses, internal secretions, anaphylaxis, focal infections—each hailed by the enthusiasts as the explanation of all the unsolved problems. Only too often the pendulum swings as far to the other extreme when the reaction comes, leading to denial of any value to the theory or to neglect of study of the subject entirely. Now this is ever our danger: that we are apt to lose our impartial judgment and render valueless any observations we have made, owing to prejudices and preconceived theories; we take sides in a controversy before we have sufficient data at hand. Rather should we make it a point to take no sides in controversial argument, but to act as impartial judges in bringing out all the evidence, then, as impartial jury, weigh its importance. We should be careful not to minimize, distort or conceal any evidence which may be opposed to what we have already begun to believe, nor to exaggerate what tends to prove our views correct. In this way we shall the sooner arrive at well founded conclusions on which further investigations may be based; in this way we shall more surely get all the possible value out of any subject, and in this way we shall avoid the errors of faddism in which all of us have fallen at some time. It must be remembered, too, that even if we are disappointed by finding that what promised to open up a tremendous field in diagnosis or treatment has proved to be quite otherwise, still we have not wasted our time entirely; we shall have gained knowledge at least, and with every investigation we narrow down the number of possible causes and make more certain the ultimate solution of our most difficult problems.

### RELATION OF DERMATOSES TO FOCAL INFECTIONS

For several years now we have been trying to determine what connection there might be between any of the dermatoses and the focal infections or infections commonly considered as usually or frequently due to focal infection. We tried not to allow ourselves to be influenced by any preconceived ideas; even when the dermatosis was of a character that made it certain to us that such infection could play no part, still we have made it a point to inquire about previous attacks of sore throat, tonsillitis, pyorrhea, abscesses in the mouth, antrum and sinus infections, pain around the joints or in muscle, nerve or tendon, endocarditis, pericarditis, varicose ulcers, appendicitis and similar infections. Also we have examined the mouth, throat and nose in practically all cases. In many cases we were unable definitely to locate any focus of infection, although we were fairly sure of its presence, owing to the expense and time which would have been necessary for a thorough examination.

In many other cases we were unable to disprove the possibility of a focal infection, even though we felt that there was no evidence of such infection, owing again to the impossibility of making the necessary examinations in every case. Patients with a slight dermatosis are not willing, as a rule, to have their teeth examined by the roentgen ray, suspicious fillings removed, their throats, antrums and sinuses examined—it simply is not feasible in the great majority of cases. What we can do and what we have tried to do is to get a thorough history of the presence or absence of any signs of focal infection, of any rheumatic attacks or allied conditions, and then note the state of the tonsils, throat, nose, mouth and teeth. This does not exclude, we admit, the possibility that the patient has an unsuspected infection in one of the sinuses, a pyosalpinx, a cholecystitis, vesiculitis, cystitis, prostatitis, appendicitis, any of which conditions may be present without pain or other appreciable symptom, even without apparent effect on the patient's health; also any of these conditions might furnish a constant or intermittent stream of infection or products of infection, whereby direct or indirect reactions in the skin might be caused without other tissues or organs being affected sufficiently to cause symptoms.

The burden of proof, however, certainly lies with the affirmative and we should not be asked to believe that a person without discoverable focus must have a focus because he has a dermatosis which we are trying to connect with such infections. It is bad enough to be offered the mere presence of a focus of infection as proof of the same connection. In the first place, the mere coincidence of any dermatosis with foci of infection should be considered as suggestive only. We must remember the many possible conditions which may act as foci of infection; we must remember how many people have one or more of these conditions, and how few people are actually free from any focus whatever. Since many people suffer from

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Ravitch, M. L.: Focal Infection in Relation to Certain Dermatoses, THE JOURNAL A. M. A., Aug. 5, 1916, p. 430.
2. Ravitch, M. L.: Kentucky State Med. Jour., 1905.
3. Gosse, A. H.: Erythema Nodosum; An Aanalysis of a Hundred Cases, Practitioner, London, 1913, 91, 240.

different foci of infection without any skin manifestations, it is not surprising that we find many dermatoses coincident with focal infections; the wonder is that we find so many in whom no focus can be found. At any rate, the proportion of persons having some focus of infection is so large that to find a high ratio in some dermatosis is not enough. The ratio must be distinctly higher than the usual ratio. The coincidence of focal infection and a dermatosis is by itself practically proof of nothing. It merely serves to add value to other evidence.

### FURTHER OBSERVATIONS

There are other ways in which we may endeavor to determine the connection than by noting coincidence of the two. For instance, when the recognized treatment has been given a thorough trial and failed and there are undoubted foci of infection, the dermatologist is warranted in doing what he can to persuade the patient to get rid of these foci, not only for the possible effect on the dermatosis, but because we know that these foci are constant menaces to the patient's health. We then have the opportunity to study the effect on the dermatosis after the removal of the focus. The tendency of many dermatoses to disappear spontaneously must be remembered, and therefore we must not accept too readily the often temporary improvement that follows tonsillectomy or other procedures as proof that the focus removed was the etiologic factor in the case. Before these cases are recorded as evidence of anything they should be watched over a long period, and relapses or recurrences noted, also any other symptoms of focal infection, for all foci may not have been removed, or a little tonsillar tissue left in the tonsillar bed may become hypertrophied and cause more trouble than before. There are, of course, many other methods of gathering proof in these cases, such as pathologic and bacteriologic examination of the lesions to ascertain whether direct infection of the skin has occurred and whether this infection is of the same character as in the focus. As our various methods of differentiating strains improve, we may hope to be able to recognize subdivisions in the streptococci, staphylococci and other forms, just as we have succeeded already in dividing the pneumococci into four types according to their serum reactions, also the meningococci and parameningococci, and the typhoid and paratyphoid. Experimental inoculation with the different strains should prove of greater value, too, when we can distinguish between the strains. Experiments on the effect of injecting sterilized pus from closed foci may prove enlightening by showing the possible action of such pus in causing anaphylactic or toxic reactions. However, we, as dermatologists, are more concerned now with what has been discovered and what we may discover through clinical observation.

### INFLUENCE OF FOCAL INFECTION IN CERTAIN DERMATOSES

Fairly early in our work we noticed that we were more suspicious of a focal infection cause for erythemas than for any other dermatosis. This was partly due to our knowledge of the work of Rosenow and others in erythema nodosum, partly to the fact that we encountered many forms of erythema in mild and severe septicemias, rheumatism and similar conditions. Several cases of erythema multiforme, exhibiting many small hemorrhagic lesions and occurring during early stages of generalized joint, heart and kidney infection came under our notice. Study of these lesions revealed that they were practically small abscesses, infection of the capillaries with cocci, with damage to the endothelium and adjacent tissue, hemorrhage and infiltration with round cells, sometimes small necrotic areas; however, the necrotic areas were too small, the extension of the infected area too limited, the proteolytic action too feeble to often result in the macroscopic formation of pus or extension of the pus to the surface. The lesions usually retrogressed during favorable progress of the case and fresh crops appeared during relapses. The extent of the dermatosis was not a measure of the severity of the case, since the dermatosis was entirely absent in several severe cases and present in mild ones. Erythema iris was encountered in several cases of acute exacerbation of chronic rheumatism. Cases of erythema nodosum usually occurred in rheumatics, though not necessarily during exacerbations or acute stages. On the other hand, we have had typical herpes iris, as well as other forms of erythema, in which we could demonstrate no focal infection and which had no other symptoms of any kind. Although some of the cases of erythema which we considered of infectious origin showed certain characteristics not usually seen in noninfectious erythemas, there was absolutely no difference in the appearance of the erythema iris cases as far as we could judge, whether they were of infectious origin or otherwise.

The urticarias and angioneurotic edemas were probably next to the erythemas in apparently showing connection with rheumatic or focal infection; yet here, too, the majority of such cases did not seem to us at all so connected. These cases, especially the urticarias, nearly always show an eosinophilia, and experimental work in anaphylaxis has shown such an intimate connection between the anaphylactic reaction and eosinophilia that this alone would turn our attention to the possibility of anaphylaxis playing a part in the causation of these dermatoses. Combine with this the appearance of urticarial eruptions as one of the symptoms of experimental anaphylaxis and the well known fact that urticaria often appears following ingestion of certain foods or exposure to certain animals or plants in susceptible individuals, and we have a fairly firm connection established. If the focal infections, then, are the cause of certain urticarias it is natural to suspect that it is through an anaphylactic phenomenon, although it is possible, of course, that this may not be true in any or all these cases. With the angioneurotic edemas one would include the possibility of there being an actual infection or toxic irritation of certain trophic nerves.

We might divide purpuras into three classes: (1) cases accompanying focal infection, especially rheumatism, and probably due to that cause; (2) cases due to anaphylaxis, and (3) cases of unknown or other origin.

Herpes zoster has been attributed to infection of the posterior root ganglions. Cocci have been found present in this tissue and a similar infection has been produced by injecting this coccus into the blood stream. We can only say that we have seen very few cases of herpes zoster that were due to infection, but we have seen many cases certainly due to other causes, such as arsenic. In some cases we could find no focal infection nor other explanation. In some cases the patient gave a history of trauma or exposure; these may have been due to focal infection lodging in chilled

or injured nerve structures. Evidently a herpetic eruption may result from irritation of certain nerve structures and this irritation may occur in more ways than one.

Among the eczemas we find cases of such widely varying etiology that it is possible that focal infection may be among the causes. We have seen eczemas due to nephritis and disappearing when the renal function was restored sufficiently. We have seen eczemas which are considered due to disturbance of internal glandular secretion, such as the breast-fed babies of hyperthyroidic mothers, and the eczema cleared up promptly when the baby was taken from the breast and given a little iodid. We have seen eczema from surplus of carbohydrate or fat in the diet; at least, correcting the diet resulted in a cure. We have seen trade eczemas; when the patient stopped working in the chemical, drug or other substance responsible the eczema yielded to mild external applications. And we have seen many cases of eczema in which we could find no cause, search as we might. We have not in our own practice seen any case of eczema which we thought due to focal infection. We admit the possibility of a toxic action on the skin from such a focus producing an eczema and we have reported a case apparently due to an ulcerated appendix.

Scleroderma has usually in our experience been easily connected with disturbance of thyroid secretion. If focal infection plays any part in its causation we should judge that it must be through affecting the thyroid. No other mode of action seems feasible to us.

Vitiligo we mention only because it has been mentioned in this connection. We absolutely fail to see how the two can be connected.

Psoriasis, also, must be considered. In the first place, various authors have written of a rheumatic factor in this disease; Chipman[4] reports finding apical abscesses in several psoriatics. Autogenous vaccines from the patient's throat or tonsils have been employed; in fact, we have tried out some experiments along this line in our own laboratory during an investigation into the cause of psoriasis. Our conclusions then are our beliefs now: that psoriasis is not due to an infection of the skin structures; it is not due to a communicable virus in the skin or blood; it cannot be transmitted by any way that we know; it occurs in individuals who may be otherwise perfectly healthy; the attacks do not occur with any relationship to rheumatic attacks; lesions in rheumatic patients show no sign of clearing up with amelioration of the rheumatic symptoms; the lesions likewise show no relationship to tonsillitis or sore throat, so that, thus far no connection has been established between focal infection and psoriasis, and we do not think there is any.

Lichen planus seems as unlikely to be due to focal infection as any condition we can mention. We grant, not for the sake of argument, but to avoid argument, that it might be possible for the skin to react in all these totally different and diverse ways to various focal infections, forming an erythema in one person, a psoriasis in another, a vitiligo in another, a wart in another, a freckle in another, but we do insist that it is too far fetched to insist for a moment that the skin really does react to these mysterious and diversified influences in such limited types of infection as we are now considering.

4. Chipman, E. D., Focal Infection in the Etiology of Skin Disease, Jour. Cutan. Dis., 1917, 35, 646.

### OTHER FORMS OF INFECTIONS

There is another group of cases of which I wish to speak—cases due to internal blood-borne or lymph-borne infections, yet not true focal infections by any means. For instance, furunculosis and carbunculosis may be local infections at first, then gain entrance to the blood stream and appear in other parts of the body for months and months. Erysipelas following infected wounds, or even septicemia, belongs to this group, too. Somewhat different from the foregoing are those erythematous lesions of nose, throat, or face commonly associated with ulceration in the nose, fistulas of the gums or other infection in adjacent tissue. One or two cases of acne rosacea have seemed to come in this category, although the majority show no connection with focal or other infections unless local and external. The other types of acne were never associated wth focal infections in our experience.

### SUMMARY AND CONCLUSIONS

To sum up what we have gathered from our own observations, the observations of other dermatologists, correlated material from internal medicine and other specialties and the reports of the pathologists and bacteriologists, we present the following conclusions:

1. If we are to gain information from observation we must try to maintain a strict impartiality.

2. We must use other methods of gaining knowledge in this field, such as laboratory experimentation.

3. We must remember the large percentage of people who have one or more form of focal infection and not accept a certain number of coincidental cases as proof.

4. Though we acknowledge other ways than direct infection of the skin by which focal infections may be causative of dermatoses, still we must not assume, without direct proof, a hypothetic power of focal infections to cause such a variety of reactions as has been mentioned in this connection.

5. Focal infections—and in that class we include those conditions, such as arthritis, endocarditis, neuritis and similar affections, which, it is now admitted by most authorities, may result from such infections—are causative of a small percentage of such dermatoses as the erythemas, urticarias, purpuras and perhaps herpes zoster.

6. Some cases of the dermatoses just mentioned which have lesions identical with the conditions referred to, are not due directly or indirectly to focal infections.

7. We can see no relationship between focal infection and such dermatoses as psoriasis, lichen planus, pernio, acne, vitiligo, scleroderma and alopecia areata.

8. Although these conclusions are based on work covering several years and a careful study of the work of others, still they are only tentative, not final; we expect them to be changed, more or less; we are not taking either side in this matter, but are open to correction from the experiences and experiments of others, recognizing that our entire point of view may be changed tomorrow.

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**Sudden Paralysis of Ocular Muscles.**—Wertheim Salomonson writes to the *Nederlandsch Tijdschrift* to call attention to seven cases recently encountered in which children and adults developed a sudden, peculiar paralysis of the ocular muscles. It was accompanied by gastro-intestinal disturbances only in a few, but he lists the cases as "botulism." The outcome was favorable in all.

# THE ETIOLOGY OF LICHEN PLANUS*

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In discussing the etiology of lichen planus most writers have been content to enumerate certain generalities as to age, sex and environment, and to epitomize our ignorance in some such phrase as "the exact etiology is unknown" or "the causes are obscure." Of those who take a definite stand on the question, some hold the view that the disease is connected with infectious microbic agents or that it is due to a toxemia, while others believe it simply the outward expression of deranged nerves, a condition resulting from overwork, grief, worry or emotional crises.

## VIEWS HELD REGARDING THE ETIOLOGY

In Great Britain, Norman Walker believes the anatomic appearances suggest an infective inflammation and cites a severe case of lichen in a professional golfer, inferentially indicating that the disease is not due to "nerves" because occurring in one who typifies the phlegmatic temperament; Malcom Morris, on the contrary, places lichen frankly among the diseases due to nerve disorder.

French writers, including Brocq, Darier and others, incline strongly to the theory of nerve influence.

Of the American dermatologists, Fordyce, Montgomery and Alderson and Engman and Mook suggest toxemic or microbic elements as the paramount etiologic factors.

One may roughly classify the opinions of these three schools of dermatology as follows: (1) British, divided; (2) French, favoring nerve theory; (3) American, tending strongly to theory of infection.

## INFECTION FROM DISEASED TEETH

In connection with the pathology of the disease, Ormsby states: "Many observers believe that lichen planus is a constitutional disease with cutaneous manifestations, produced by an unknown toxic agent acting on the nerve centers." This approximates the view which it is the purpose of this paper to suggest, namely, that lichen planus may result from systemic toxemia or bacteremia, the origin of which is most often, if not always, in the teeth.

The theory of focal infection as the chief etiologic factor in lichen planus is not new even though it receives little if any notice in the most recent editions of American textbooks. It was definitely suggested before this section in one of the discussions at the 1915 meeting. It was mentioned again before this section in 1916, and was further the subject of extended discussion at the annual meeting of the American Dermatological Association in 1917.

If it may not seem too insistent the suggestion is respectfully reiterated before this section in 1918 that the most probable exciting cause of lichen planus is tooth infection. Further, so many reasons exist which suggest nerve involvement, we may tentatively add that the nervous system plays a complementary part in the production of the lesions to the extent that either special vulnerability to any toxic or bacterial substance obtains in certain individuals, or that definite tissue affinity is present for a special toxic or bacterial substance in any individual.

It would seem that ample clinical observation alone will suffice to establish the relationship of lichen planus with focal infection. If a part be conceded to the nervous system the decision as to whether it is a question of specific tissue affinity or simply one of diminished resistance following overwork, emotional excitement and similar influences must rest rather on the fulfilment of the usual laboratory postulates.

Unfortunately the exigencies of the military situation have prevented the elaboration of this idea as planned. It will be the aim of this paper, therefore, to present a short series of typical histories from private practice and to indicate a few reasons why tooth infections are frequently overlooked.

In addition to the case histories which follow, there might have been included, if available, the records of numerous others seen in hospital services in none of which was evidence of tooth infection lacking.

## REPORT OF CASES

Case 1.—H. K., an ex-prisoner of war, who had escaped after passing through a period of marked mental stress, presented characteristic papules on the flexor surfaces of the arms and forearms as well as the trunk. Repeated and thorough treatments with arsenic and mercury both by mouth and subcutaneously, as well as local applications, failed to ameliorate the condition. Roentgenograms revealed apical abscess of a molar tooth. A few weeks after this he received proper surgical treatment, the lesions resolved and although a year now has passed there has been no recurrence.

Case 2.—Mrs. B., a stout woman, of nervous temperament, who was easily fatigued and easily irritated, presented marked papules on flexor surfaces of the legs and inner aspect of thighs, accompanied by severe paroxysms of itching. When referred to me the usual general and local remedies had been employed without avail. Roentgenograms revealed a definite abscess about a molar tooth which was removed. Following this treatment the patient went on a vacation to the country and in two months the cure was complete.

Case 3.—A. M., a middle aged man inclined to obesity, a heavy eater and smoker and a moderate drinker, presented a papular eruption on the outer aspect of both legs. Some of the lesions were discrete and some had coalesced into infiltrated patches the size of a 25-cent piece. The treatment consisted of restricted diet, avoidance of alcohol, tobacco and all stimulants, together with the internal administration of red mercuric iodid and the local application of the ultraviolet rays. Although the roentgenogram had revealed definitely abscessed areas about two teeth, the patient demurred when treatment of them was proposed. Under the treatment noted some improvement was registered, but a cure did not follow, and when later the treatment was relaxed an exacerbation occurred. On resumption of the treatment, improvement was again noted and the patient desired further delay before undergoing treatment for the abscesses of the teeth. When last observed the lesions, then of some six months' duration, were still apparent.

Case 4.—Mrs. H., a young woman with inclination to overweight and a somewhat nervous temperament, complained of widespread lichen planus papules involving the flexor surfaces of wrists and arms, the trunk, legs and thighs. When the possibility of tooth trouble was suggested it was promptly and vehemently repudiated on the ground that she had just paid a dentist $600 for professional services. Nevertheless, a series of roentgenograms was made and six infected areas were disclosed. The subsequent recommendations of a dental surgeon called for such radical treatment that the patient elected to suffer from lichen planus rather than undergo the surgical treatment indicated. The lesions, which were acute in type, responded in about ten weeks to treatment with red mercuric iodid internally and calamine lotion externally.

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

CASE 5.—Mr. A. was a middle aged man with classically arranged whitish papules on both lateral walls of the buccal cavity. This patient presented palpably diseased conditions of the teeth with pyorrhea. He came from a distance, was seen once only, and was advised as to treatment of teeth. Results not known.

CASE 6.—J. R., a man, aged 30, by occupation an electrician, presented typical lichen planus papules of both forearms. Examination of the teeth revealed an abscess of a crowned bicuspid tooth. Treatment of this condition was recommended, but the case could not be followed further.

CASE 7.—MRS. A., an elderly woman, with no evidence of nervous temperament, complained of a papular eruption on the hands and wrists of one month's duration. Although several stumps of infected teeth were present, no treatment of them was attempted, because the lesions resolved under the internal administration of red mercuric iodid.

CASE 8.—MRS. G., a middle aged woman of exceptional tranquillity and poise, came with characteristic papules of hands and forearms. Itching was severe. Rather prompt disappearance of lesions followed the use of biniodid of mercury. In one year there was a recurrence and the same treatment was not effective. On this occasion an abscessed tooth was found and treated. Recovery followed in a few weeks.

### IMPORTANT FEATURES OF THESE CASES

Now an analysis of the general factors involved in these cases would possibly not vary greatly from that of a much larger series.

As to age, no patient was under 30; the average was about 45. The number of men and women was exactly the same. In only one patient was there history of marked emotional disturbance. Of the four women concerned, only two were to be classed as "nervous," while of the men not more than one would fall into that category, so that the proportion of those palpably nervous is possibly no greater among those suffering from lichen planus than in those free from it, at least as far as this series reveals.

The question of age is of additional interest because it is a common observation that lichen planus is rarely observed before the first two decades of life are passed. This squares perfectly with the assumption that it may originate in a tooth infection, for such infections occur with relative infrequency in those under 20 years of age.

### SOURCES OF ERROR

In attempting to prove a connection between any condition whatever and tooth infection, certain definite principles must be established. Several years ago in one of the section discussions one of the members remarked that only a certain small percentage of some skin disease in his practice showed evidence of tooth infection. It has occurred to me many times since then that had he based his conclusions on data procured in the same way that I was procuring mine at that time, the results might reasonably be expected to have been even less convincing. When the conception of focal infection first became widespread it was my custom to inquire of the patient's dentist if there was a possibility of any infective area about the teeth. The percentage of positive reports was so small and negative reports were so often rendered, only to be nullified later by roentgenograms, the fixed rule became soon established that only work from approved laboratories was considered as having significance, and the opinion of no dentist was given any weight unless good evidence was at hand as to his qualifications to approach the subject from a truly surgical point of view.

The mere statement of a patient's dentist that there is no focal infection is insufficient; his statement may be correct, but in no case can the question of infection be conclusively settled without roentgenograms. Again, the fact that a patient claims to be toothless, except for the artificial variety, need not be convincing, for the reason that hidden stumps may be revealed under the searching eye of the roentgen ray.

Still another source of error is found in the failure to obtain cure after admittedly infected teeth have been extracted. I have had occasion to observe the unfortunate results which followed in several instances when such teeth were "pulled." By reason of the unsurgical procedure certain infective elements were left behind and these combined with the trauma caused the development of a secondary infective process of greater severity than the primary one.

In this connection it is gratifying to point out the work that is being done by Novitzky,[1] who takes the stand that any dead tooth left in the body will sooner or later become a source of local or systemic infection. Recently he has emphasized two points: (1) A microorganism, a poisonous protein, or a toxin introduced into the blood stream by way of cancellous bone would be more active than would be the same amount if introduced into the stomach, and (2) on account of ills resulting from the retention of dead teeth in the jaws and on account of the impossibility of rendering dead teeth permanently aseptic we must conclude that teeth should not be devitalized.

Novitzky's technic for the removal of dead teeth is partially described as follows:

> Under local anesthesia the gums and the periosteum may be cut loose and retracted along the entire side of the jaw if this is necessary in order to gain space for operating. If the gums are carefully sutured back in normal position against the teeth, reattachment will take place. Ordinarily it is sufficient to cut a triangular flap with the apex pointing to the gingival margin of the tooth to be removed. This flap is raised and held back. Enough bone is removed with the chisel to give access to the apical region. The tooth may be hooked out sidewise, either before or after the apical exploration and curettement, depending on whether or not the entire root length of the buccal plate has been removed. The external periosteum flap is pulled into the opening at completion of the operation with a suture.

The advantages of this technic are: The avoidance of fractures, the opportunity for complete curettement, the avoidance of septic bone, granulating and low grade suppuration.

This may appear as a digression from our subject. Its vital relation, however, will be felt by those who have had the unpleasant experience of seeing their patients grow worse instead of better on removal of dead or diseased teeth simply because the dentist to whom the work was entrusted did not base his procedure on sound surgical principles. Its importance in relation to the etiology of any disease lies in the fact that if we believe the infective focus removed clearly, when in reality it is more septic than ever, we are certain to entertain false opinions as to its relationship with the disease in question.

### CONCLUSIONS

1. In the study of a limited number of cases the only constant factor was tooth infection.
2. The rôle played by the nervous system remains to be determined.

1. Novitzky, Josef: Dead Teeth, New York Med. Jour., 1918, 107, 348.

3. Great care must be exercised in the diagnosis of infected teeth and the results of operation should not be used as the basis of statistics or opinions unless performed by a competent surgeon.

## ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. RAVITCH AND STEINBERG, AND CHIPMAN

DR. RICHARD L. SUTTON, Kansas City: I have been impressed with Dr. Chipman's conservatism. I want to call attention to an excellent monograph on focal infections by Duke, which is just off the press. In it you will find a lot of information on many obscure points. Of course we are interested in focal infection mainly from a cutaneous viewpoint. Recently, in an aged man, suffering from chronic pemphigus, we found eleven apical abscesses; after these had been eradicated and the patient's mouth thoroughly cleaned up, the skin lesions promptly disappeared under the use of simple, soothing applications, and there has been no recurrence during a period of several weeks. In my opinion, all cases of discoverable focal infection should receive prompt attention, even though there is no traceable connection between them and the disease for the relief of which the physician is consulted. In acne, particularly, you will find that the removal of a pair of badly infected tonsils will often prove a long step toward bringing about the cure of the cutaneous disorder.

DR. KING SMITH, Toronto: The procedure now in force in the Army affords a good opportunity to see these cases. Every man in the hospital in France and in other places has his teeth examined. This is a routine examination made by the dental department, not the thorough examination with the roentgen ray. There is no class of men whose teeth are so bad as the British Tommy; he has pyorrhea and every other kind of trouble. In a hospital where 21,000 passed through, skin diseases were very rare, except for pus infections. The British Army probably had only one dentist to 1,000 men, whereas the American and Canadian armies have a dentist for every 500 men; so the teeth are being well looked after. With so much focal infection of the teeth I was interested to see so little skin infection. As to infection from suppurating sinuses, throughout the Canadian Army last year a large percentage of returned men had a dermatitis resembling an eczema. We began to examine them by different methods and soon it was noticed that practically all had returned on one hospital ship. Word came that every suppurating case coming into that port must have swabs taken and a bacteriologic examination made. It turned out to be a diphtheritic infection. There was no diphtheria on the ship, but all these cases were due to this bacillus, when there had been no sign of diphtheria for months, and all came from this one hospital ship.

DR. JOHN E. LANE, New Haven, Conn.: I am a firm believer in the clean mouth and in the removal of pus wherever it may be found. However, I do not think that we yet have sufficient evidence for believing that focal infection is an etiologic factor in all the diseases that have been mentioned. It seems to me that in deciding the etiologic importance of focal infections a lot of rubbish must be cleared away before we get down to the productive soil of conclusive experiments. Focal infection does not always necessarily affect the general health. One important question is whether the infection is confined under enough pressure to cause absorption. The wall of an abscess is a very poor organ of absorption, but if it is confined and under pressure there undoubtedly will be some absorption though it is frequently difficult to decide whether this is taking place. It is evident that in many cases of pyorrhea with free drainage there is little or no absorption and no constitutional symptoms of absorption. All the patient is getting is pus and bacteria, which he swallows and digests, with health which is astonishingly good under such filthy conditions. A much better absorptive surface is offered by the tonsils than is found in pyorrhea. It is more difficult to determine the rôle played by apical abscesses. I am not at all convinced whether focal infection is or is not an etiologic factor in any of the conditions discussed. I am convinced that there is an etiologic relationship between focal infections, especially of the tonsils and of the teeth, and many of the arthritides.

DR. FREDERICK G. HARRIS, Chicago: I am not yet convinced of the rôle that focal infection plays in the etiology of all these various dermatoses. If we assume that these infective foci contain any of possibly half a dozen different organisms, we find that these few micro-organisms can cause very many different diseases, varying in type from eczema to pemphigus and from lichen planus to dermatitis herpetiformis. I think it is time for us to get down to true scientific work. Why have not the various organisms been isolated and identified? Let us see if the same disease supposedly due to apical abscess shows the same bacteria as the abscess. Then, let us study the metabolic products of these bacteria both chemically and in their effect on the skin. It seems to me that focal infection is an accessory after the fact and not before.

DR. M. SCHOLTZ, Cincinnati: A sufficient number of cases has been reported to establish firmly the causative relationship of focal infection to skin diseases. However, focal infection should not be considered as the sole etiologic factor in all cases. Other pathogenic factors should be considered in possible correlation, all working, as it were, in a vicious circle. For instance, focal infection may induce skin anaphylaxis due to proteids of bacteria or their toxins; this in its turn may affect the system of endocrine glands with a new train of symptoms. In regard to lichen planus, there is no question that some of the cases may be traced to focal infection, but why should we limit the sources of it to teeth and tonsils only? On the other hand, the fact that the patient improves after the removal of a focal infection does not always establish the causative relationship. The patient may get well simply because after a weakening or toxic effect of an infected focus had been removed, the system may regain vitality enough to combat other coexistent pathogenic factors which may be present in the case.

DR. EVERETT S. LAIN, Oklahoma City: I am still largely of the opinion that the field of focal infections in dermatology is quite limited. I have observed, as have Dr. Chipman and Dr. Ravitch, the various skin lesions in connection with focal infections in a casual way also, and have tried to follow one certain disease for several months, studying the cases carefully. Again, I want to stress what has already been said, that the mere passing on the mouth by the dentist is not at all confirmative, especially if that dentist is the one who has put the crowns on the teeth or done the bridgework. It is always more satisfactory to have the roentgenographic work done in one's own office than to depend on somebody else on account of the various angles which are needed for correct diagnosis. My experience with urticaria has not been positive in regard to focal infection. In lupus erythematosus I suggest that if every case is carefully noted I think we shall see that this disease also bears a very close relation to focal infection. With reference to zoster sometimes being caused by arsenic, that is an established fact, but could that not be an exacerbation due to the breaking up or scattering of these toxins, the same as we have seen in the secondary stages of syphilis after giving arsenic? The extraction of a tooth often lights up the trouble, as has been mentioned.

DR. DAVID LIEBERTHAL, Chicago: I wish to call attention to the familial occurrence of lichen planus, which strongly suggests infection as a cause. There are about thirty cases on record which showed simultaneous appearance of the disease in two or more members of the same family. The theory of focal infection has created a great deal of enthusiasm and confusion and caused many patients to lose teeth unnecessarily. If methods could be devised to drain pus foci around teeth without sacrificing the latter, no harm would be done nor adverse criticism heard to focal infection around teeth being offered as an etiologic factor.

DR. J. S. EISENSTAEDT, Chicago: In the discussion of lichen planus I am traveling on thin ice, for the reason that my results are less favorable in the treatment of lichen planus than any other disease. I have treated lichen planus in professional wrestlers, who are not of a nervous type. Several years ago I had patients whose parents had syphilis. I thought I saw a relation, but the patients had negative Wassermann reaction and it was probably only a coincidence. I have obtained results by giving mercury internally or by

injection; I have also had results from arsenic—Fowler's solution, or sodium cacodylate, or sodium arsenate, and then again other cases did not respond to that treatment. Among other cases seen recently was a case in which the teeth were very bad and I had them removed. Afterward I used mercury and arsenic, but the improvement was very slow. I believe that lichen planus is still mysterious as regards its etiology, and equally so as regards the prognosis from the usual types of therapy.

DR. K. A. ZURAWSKY, Chicago: Dermatologists have been very unjustly accused of splitting hairs regarding the classification of diseases, and now we are going to the other extreme and generalizing everything under one head. I would like to make a few objections. In the first place, to say in the twentieth century and the present status of dermatology that certain diseases are due to "focal infection" without stating what that infection is, is bearing a little bit too hard on one's credulity and powers of imagination. There can be and there are some skin diseases which are due to infections; but we cannot expect that the cleaning out of an apical abscess or the taking out of the tonsils will remove all the causes of the half-dozen or dozen, or two or three dozen different diseases. Our friends, the dentists, who have started so much of the talk about focal infection, have given us the idea about focal infection, but have not told us of what that infection consisted. They have told us of the staphylococcus and streptococcus and other bacteria, but have never isolated any one of them, and until they do we should not talk of focal infection as a definite factor. Dr. Scholtz mentioned some of the ductless gland disorders that might be considered as the cause of local reaction. I think anything of this kind may exaggerate the patient's condition, whatever may be the etiologic factor.

DR. JOHN H. STOKES, Rochester, Minn.: Focal infection certainly impresses one as having been the stamping ground of the *post hoc propter hoc* type of clinician. The conservativeness of Drs. Ravitch and Chipman's papers is therefore eminently praiseworthy. Much experimental work is still needed before any of us can feel that the subject has passed beyond the realm of speculation. The mere fact that a lesion clears up following the removal of an abscessed tooth or the use of a vaccine is not yet to be accepted as a demonstration of the causal relation of the abscess or the specificity of the vaccine therapy. Speaking purely as a clinician, I have been much impressed by the apparent relationship between the foci of pyogenic infection in the teeth and tonsils and the generalized exfoliative type of dermatitis. I think a similar type of relationship may exist between pemphigoid eruptions and foci of infection. Several of my cases have seemed to respond exceptionally well to measures directed at a definite focus. I have even seen cases of alopecia areata come on abruptly following unintelligent dentistry and clear up after the removal of abscessed teeth. It must be obvious to any one with even a modicum of critical faculty that argument of this type does not justify sweeping statements at the present time.

DR. WALTER J. HEIMANN, New York: I have seen some remarkable cases that have cleared up in the same way that Dr. Stokes has mentioned. There is something about focal infection, but what? We are talking about it as being the etiology of skin diseases of a certain type. Everybody here has said that it is not. It may be a contributing factor, and we might look for the prostate gland, the fallopian tubes, the appendix, etc. I protest against the classification of diseases furnished by Dr. Lain. We know that rosacea is due either to gastrointestinal disturbance or to disturbance of the internal organs. This has been proved definitely. As to lupus erythematosus, while we do not know what it is, I am perfectly willing to concede that some cases may be due to focal infection, whatever that may be. I must enter a protest, however, against herpes zoster. We know that that is a definite clinical entity. A man has one attack and is immune. After the herpes zoster has disappeared the focal infection remains. Is it possible for the etiologic factor to cause a disease, the disease disappear and the etiologic factor remain? I think that is one of the greatest absurdities, and I wish that sort of reasoning could be eliminated from scientific discussions.

DR. MICHAEL L. RAVITCH, Louisville, Ky.: I have not changed my opinion in the least. I am very conservative about focal infection and I do not believe that so many dermatologic cases are due to focal infections. I am in the middle of the road and trying to learn the true facts.

DR. ERNEST D. CHIPMAN, San Francisco: We seem to be in the process of being swept by a wave of skepticism. Dr. Harris seems to feel that we should have a lot of experimental evidence in support of certain facts. If a man with diabetes is thirsty, you do not have to go to the laboratory to prove it. If a patient has a tapeworm, we need not go to the laboratory to know that he is hungry. I wish you to consider the connection of focal infection. I do not like the attitude of *laissez faire* in connection with our treatment of skin diseases. I submit that it is time to make an effort to do something constructive. If we cannot support our facts in a clinical way, let us at least do a little reasoning. I do not subscribe to Dr. Heimann's remarks regarding herpes zoster. Ample work has been done there. If one will read the work of Rosenow and Billings he will find that the same kind of organisms have been found in these lesions as in the nerves. It seems to me that if anything has been proved it is the connection between herpes zoster and erythema nodosum. A more extensive study may change my opinion, but at present, it is sure, we cannot ignore it. If we do, it is like an ostrich putting its head in the sand.

Dr. Ravitch spoke as if I was claiming that psoriasis was caused by focal infection, which was not the case. A year ago I reported seven cases of psoriasis that had a focal infection. I gave that simply for what it was worth. Since then I have had a case of psoriasis in which we found two abscessed teeth. They were extracted, the external treatment remained the same and the disorder cleared up. Within a month's time he had a recurrence. That did not square with the fact. The patient said he was sure he still had trouble with the teeth and another examination showed that this was the case. I do not say that psoriasis is caused by focal infection, but in these cases, if the patient has pus which is being absorbed slowly, or which is confined, we do not do our best for that patient if we ignore it. I think we are all agreed that we should do our best for our patients in every way.

As to lichen planus, I am not claiming that focal infection is a definite etiologic factor in this disease, but that it has been present in all the cases that I have seen.

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## ROENTGENOGRAPHIC STUDIES OF TISSUES INVOLVED IN CHRONIC MOUTH INFECTIONS *

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In a paper[1] presented before this section at the New York meeting last year there was included a tabulation covering a critical examination of 3,000 roentgenographic films of the teeth and adjacent bone of the mouths of 300 adults. During the past year these studies have been continued with results that very closely parallel the previous figures. The present tabulation, which includes that of last year, covers 600 roentgenographic mouth examinations, for each of which ten small films were made—a total of 6,000 films.[2]

The object of this study is primarily to determine as nearly as possible the average percentage of chronic mouth infections, which are of two types: (1) those that begin with inflammations of the gingivae and

* Read before the Section on Stomatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Black, A. D.: Roentgenographic and Microscopic Studies of Tissues Involved in Chronic Mouth Infections, THE JOURNAL A. M. A., Aug. 25, 1917, pp. 599-602.

2. The 6,000 films, mounted, were exhibited in connection with the presentation of this paper.

progress along the side of the root toward the apex, destroying the peridental membrane and adjacent alveolar process—chronic suppurative pericementitis; (2) those which, subsequent to the death of the pulp of the tooth, cause a destruction of the bone about the apex of the root—chronic alveolar abscess. Secondary to the foregoing, other data are being compiled, such as the existing relationship between these mouth infections and the general health, the number of teeth present at various ages, the number of teeth having root fillings, notations as to whether the root fillings are good or poor, and the frequency of alveolar abscess about the apexes of well filled and poorly filled roots. These studies are therefore considered to be of fundamental importance from two points of view: (1) that of chronic mouth infections as a cause of systemic disease, and (2) that of the dentist's technic in pulp treatment and root filling in relation to the occurrence of alveolar abscess.

An effort has been made to take roentgenograms of the mouths of persons as we meet them on the street, that is, without previous inquiry as to the condition of their mouths or their health, in order that our figures may represent average conditions. The 600 persons included in the tabulation consist of about 300 dental students, about fifty Dental and Medical Reserve Corps officers, about fifty of my own patients, and patients applying for dental service at Northwestern University Dental School. It is believed that the figures represent very close to average conditions for persons of less than 40 years of age, but the number of infective foci in persons past 40 is doubtless too high, because there are included a few who presented themselves because of systemic conditions that called for mouth examination.

Of the 600 adults examined, 78 per cent. are shown by the roentgenograms to have definite areas of bone destruction about the teeth. If we make every possible allowance for variations from the average which these 600 cases may represent, the fact remains that a high percentage of adults have chronic infections involving the maxillary bones. With our present knowledge of focal infections in relation to systemic disease, these mouth conditions constitute a serious menace to the health-producing power and longevity of the people.

### AREAS OF CHRONIC INFECTION

The accompanying tabulation records areas of chronic infection about the teeth, in 57 per cent. of persons aged from 20 to 24, 64 per cent. aged from 25 to 29, 88 per cent. aged from 30 to 39, 90 per cent. aged from 40 to 49 and 98 per cent. aged 50 or more. As previously mentioned, the percentages for persons past 40 are too high because of the fact that a number of those included in the tabulation presented themselves on account of their general physical condition. Attention is also called to the fact that a considerable number of persons past 40 who are edentulous are also free from these infections. None of these were included in this study.

The areas of destroyed bone are given in two groups, under the headings "peridental infections" and "alveolar abscess." The term "peridental infections" is used here to cover all areas of bone destroyed along the sides of the roots of the teeth, from suppurations beginning in the gingivae. The term "alveolar abscess" covers all areas of bone destroyed at the apexes of roots, subsequent to the death of the pulps of the teeth.

The peridental infections are very seldom found in the mouths of persons of less than 20 years. They are to be considered as lesions of adult life only, which are more frequent with advancing years. For the group between the ages of 20 and 24, 13 per cent. had infections of this type; those aged from 25 to 29, 29 per cent.; those aged from 30 to 39, 68 per cent.; those aged from 40 to 49, 77 per cent.; those aged 50 or more, 88 per cent. These percentages alone do not tell the full story, as in addition to the increase in the number of persons with advancing years, there is also an increase in the number of areas per person, from four per person of those affected between the ages of 20 and 24 to ten per person in those aged 50 or more.

Alveolar abscesses are found in the mouths of persons of all ages. It would be expected that the number would increase with age, except for the fact that the number of abscessed teeth extracted serves to maintain a balance. In the present tabulation for persons aged from 20 to 24, there are recorded 52 per cent. who have abscessed teeth; for those aged from 25 to 29, 51 per cent.; for those from 30 to 39, 63 per cent.; for those from 40 to 49, 59 per cent.; for those of 50 or more, 50 per cent. The number of abscesses per person does not vary much with age, the average being 2.6 per mouth for those aged from 20 to 24 having abscesses, and the same for those of 50 or more. The lowest was 2.2 abscesses per person for those between the ages of 30 and 39. It is very interesting to note that last year's tabulation of 300 persons showed 59 per cent. with alveolar abscess, while for the 300 added this year only 41 per cent. had alveolar abscess. It is believed that this difference represents in some measure the better realization of the danger of these infections to health, with the result that a larger number of infected teeth have been extracted. No attempt has as yet been made to determine the percentage of abscesses in the mouths of persons of less than 20 years of age.

### RESULTS OF QUESTIONNAIRE

It was not practicable to make thorough physical examinations of these patients, and only a limited number of reports of such examinations were obtainable. The effort was therefore made to secure by a questionnaire the best possible information as to the physical condition. Inquiry was made as to enlarged finger joints, muscles or joints which were occasionally painful, condition of the nose and throat, inflammation of eyes, attacks of appendicitis, etc. It is appreciated that this information is not very reliable, as it does no more than give a general idea of the health of the persons examined. Of the 501 included in the questionnaire, 363 are reported as entirely negative as to secondary systemic disorders, seventy-two complained of occasional muscular or joint symptoms, and sixty-six reported well defined cases of arthritis, nephritis, appendicitis, etc. Forty-two, of the last group of sixty-six, were persons of 40 years or older and a considerable number of these presented themselves because of their physical condition. None were hospital cases. The principal value which these figures on systemic conditions give to the tabulation is in showing that the large majority of those examined were in good health, from which fact we may conclude that the number of areas of infection reported are not likely to be far astray in the establishment of

average figures, with the exception, already noted, of persons past 40.

The average number of teeth per person is an indication that the mouths have probably had average care by both patient and dentist. It is noted that for the 411 persons in the three groups covering ages from 20 to 39, there is an average of twenty-eight teeth. As the third molars are not constant in development, there is an average loss of less than four teeth per person up to 39 years.

### ROOT CANAL FILLINGS

A feature of this tabulation of especial interest to dentists is the occurrence of alveolar abscess in relation to good and to poor root canal fillings. For this study the roots of the teeth were divided into two groups: those having large canals and those having small canals. This division was made because of all teeth having good root fillings, and 63 per cent. abscessed of all teeth having poor root fillings. Doubtless some in both groups were abscessed before the root fillings were made. It seems that no better argument could be found to induce dentists to be more painstaking in their root filling technic, for here is the opportunity to reduce the total of alveolar abscesses to about one fifth of the present number—an effort very well worth while.

It should be stated that we have been very liberal in classifying these root fillings; if we have erred it has been by placing an excessive number in the "good" columns. It is appreciated that it is not always possible to determine the condition of a root filling by examination of a roentgenogram. Fillings were classed as good if the root apex was apparently filled, or, in those cases in which the root filling did not reach to the apex, if no canal was discernible beyond the root

TABULATION FROM 6,000 ROENTGENOGRAPHIC FILMS OF TEETH AND ADJACENT BONE IN MOUTHS OF 600 ADULTS*

| Age | Number | Systemic Symptoms: No History | Negative | Complaint of occasional neuralgic or joint symptoms | Well defined cases, arthritis, syphilis, etc. | Average number teeth per person | Peridental Infections: Number of persons, some bone destroyed at sides of roots | Percentage having bone destruction | Average number of infections per person for entire number | Alveolar Abscess: Number of persons, some bone destroyed at apices of roots | Percentage having bone involved | Average number of abscesses per person | Summary: Number of persons having peridental or apical infections or both | Percentage of persons having infections of mouth | Root Fillings: Number of persons having root fillings | Total number teeth with root fillings | Percentage of all teeth having root fillings | Number of root apices not clearly shown | Large Canals: Number of good root fillings | Number abscessed with good root fillings | Number of poor root fillings | Number abscessed with poor root fillings | Small Canals: Number of good root fillings | Number abscessed with good root fillings | Number of poor root fillings | Number abscessed with poor root fillings | Alveolar Abscesses: Total root fillings abscessed | Number abscessed, no root fillings | Total abscessed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 to 24..... | 146 | 9 | 120 | 11 | 6 | 29.5 | 18 | 13 | 0.6 | 77 | 82 | 1.4 | 89 | 57 | 108 | 357 | 8.6 | 72 | 85 | 10 | 120 | 83 | 62 | 2 | 69 | 71 | 166 | 42 | 208 |
| 25 to 29..... | 119 | 9 | 80 | 14 | 6 | 28.5 | 34 | 29 | 2.0 | 69 | 51 | 1.3 | 75 | 64 | 83 | 238 | 9.8 | 69 | 54 | 8 | 111 | 68 | 41 | 4 | 60 | 45 | 123 | 49 | 172 |
| 30 to 39..... | 146 | 30 | 79 | 25 | 12 | 26.5 | 101 | 68 | 5.7 | 82 | 62 | 1.4 | 119 | 88 | 116 | 504 | 13.0 | 89 | 94 | 8 | 169 | 95 | 46 | 4 | 107 | 99 | 197 | 35 | 232 |
| 40 to 49..... | 111 | 20 | 51 | 15 | 15 | 24.0 | 87 | 77 | 7.1 | 65 | 59 | 1.5 | 102 | 90 | 80 | 329 | 12.0 | 74 | 69 | 8 | 117 | 75 | 38 | 7 | 42 | 41 | 125 | 36 | 161 |
| 50 and over | 78 | 12 | 73 | 9 | 24 | 22.0 | 69 | 88 | 9.0 | 62 | 80 | 1.3 | 77 | 98 | 48 | 167 | 8.9 | 32 | 39 | 8 | 54 | 40 | 17 | 2 | 33 | 24 | 68 | 42 | 108 |
| Totals... | 600 | 80 | 363 | 72 | 66 | 26.5 | 319 | 53 | 5.0 | 333 | 55 | 1.4 | 469 | 78 | 435 | 1,695 | 9.8 | 344 | 343 | 31 | 570 | 359 | 184 | 19 | 413 | 271 | 677 | 205 | 882 |

Large Canals: Upper—central incisor, cuspid, second bicuspid, lingual roots of molars; lower—cuspid, first bicuspid, second bicuspid, distal roots of molars.

Small Canals: Upper—lateral incisor, first bicuspid, buccal roots of molars; lower—incisors, mesial roots of molars.

SUMMARY OF ABSCESSES IN RELATION TO ROOT FILLINGS

| | | | Number Abscessed |
|---|---|---|---|
| Good root fillings, large canals | 343 | | 21 |
| Good root fillings, small canals | 184 | | 19 |
| | | 527 | 40 |
| Poor root fillings, large canals | 570 | | 356 |
| Poor root fillings, small canals | 413 | | 271 |
| | | 983 | 627 |
| | | 1,510 | 677 |

* Percentage of abscesses for all root fillings, 43; for good root fillings, 9; for poor root fillings, 63.

The figures given in this tabulation are believed to be very close to average figures for persons under 40; for older persons they doubtless show a higher percentage of infection than the average.

the differences in technic required. The upper central incisor, cuspid, second bicuspid, and lingual roots of molars, the lower cuspid, the first and second bicuspids, and the distal roots of the molars were classed as having large canals. The upper lateral incisor, first bicuspid and buccal roots of molars, and the lower incisors and mesial roots of molars were classed as having small canals.

The roentgenograms showed 1,695 teeth with root fillings. This is 10 per cent. of all of the teeth in the mouths of the persons examined. Of these teeth, 344 were not included in the special study of root fillings, because the shadows were not sufficiently clear for positive reading. Each root of multirooted teeth was counted separately. There were recorded a total of 343 good root fillings in large canals, of which thirty-one were abscessed, and 570 poor root fillings in large canals, of which 356 were abscessed. For the small canals, there were 184 well filled, of which nineteen were abscessed, 413 poorly filled, of which 271 were abscessed. This gives only 9 per cent. abscessed of filling. By this plan, all questionable fillings were given the benefit of any doubt.

### CHANGES IN DENTAL PRACTICE

The effect of the study of these cases is well shown by the changes that have been noted in the clinic of Northwestern University Dental School. The roentgenographic service has been increased several fold as compared with a few years ago, a total of more than 17,000 films having been made during the past year. In the same period nearly 24,000 teeth were extracted, and the number of artificial crowns and bridges much reduced, while there has been a corresponding increase in the number of artificial dentures made for patients. This is an expression of the changes in dental practice throughout the country. A constantly increasing number of dentists are coming to realize that it is their positive duty to free the mouths of patients from infection, even though this requires the extraction of a number of teeth. But what is of much more importance, there is a deter-

mined effort on the part of many to use every possible means of preventing the occurrence of these chronic mouth infections, and those who have seriously undertaken to do so are meeting with a large measure of success. This is preventive dentistry that is worth while, for it is cutting off at the source much systemic disease.

## ABSTRACT OF DISCUSSION

Dr. Eugene S. Talbot, Chicago: Dr. Black speaks of so many cases of root filling and then so many abscesses. I would like to have him tell how he knows these are abscesses. My researches have shown that we must classify, that we must know exactly what takes place at the roots of the tooth. Many of these cases that are called abscesses are not abscesses. They are simply absorptions. In all these experiments that I have been doing the last three or four years, with the microscope, destroying pulps of teeth and then immediately conducting the different drugs that we use through the ends of the roots of the teeth, this sequence invariably takes place. The irritation produces an absorption of the alveolar process. It depends on the amount of the irritation as to where that absorption stops. If it is a slight irritation, the absorption of bone will take place and fibrous tissue will remain around the end of the root of that tooth. That absorption may or may not be very extensive. If the irritation is more severe than what I have just mentioned, the fibrous tissue will be destroyed around a certain area, and that absorption and destruction of fibrous tissue takes on the appearance of what is called an abscess under the roentgen ray. I have noticed that many cases which presented conditions that were considered abscesses were not abscesses, but simply absorptions of the alveolar processes and roots and destruction of the peridental membrane at the end of the root of the tooth. If the irritation is still greater, with infection, so that even the fibrous tissue is destroyed, an abscess will form. There are three conditions or stages which we must understand and classify by the roentgen ray. I have not been able to classify these with the roentgen ray. We must first examine the case with absorption in order to show the three different conditions that take place. I want Dr. Black to explain these three different conditions, if he can, and why he calls all these cases abscesses. The other condition is where the fibrous tissue will remain after the absorption of bone. The next is where the irritation and infection are so great that an abscess will form. First, there is absorption of bone and root. The peridental membrane still remains because there is not sufficient irritation to produce a destruction of the peridental membrane and fibrous tissue. Second, the peridental membrane and fibrous tissue are destroyed without an abscess forming. Third, the fibrous tissue remains around the root of the tooth and an abscess forms in this fibrous tissue and remains after absorption of bone has taken place. These are the three actual conditions that occur and are seen with the microscope.

Dr. Thomas L. Gilmer, Chicago: I am in accord with Dr. Talbot's statement that there is in some instances, indication of absorption of the process when no infection exists. After examining roentgenograms, we are sometimes left in doubt, whether abscesses exist or not. There may be a very limited area of bone destruction followed by a thickening of the pericementum when no infection exists. I am of the opinion, however, that in the majority of these cases the areas are infected. My reason for this belief was strengthened by my study of the bacteriology of alveolar abscess. I extracted a large number of pulpless teeth and secured the *Streptococcus viridans* from almost all cases, when the roentgenogram showed rarified areas. Alveolar abscess, when some of the apical peridental membrane has been destroyed, may be cured temporarily by sterilization of the root canal, but it is for a very limited period, because there will be reinfection sooner or later through the organisms being carried to the dead cementum by the blood stream.

Dr. Arthur Zentler, New York: Whether or not the roentgenogram can be relied on to tell the condition present at the apical end of a root is not established. While some doubt has been expressed here as to whether there is or is not an abscess when the roentgenogram indicates absorption, there remains to be shown whether when the roentgenogram does not show absorption, that there actually is no pathology. I have been impressed with this unreliability. Experiments which I carried on to establish whether conservative (electrolytic) treatment is sufficient to cure pathologic conditions at the apexes of roots, or whether apecoectomy is necessary to obliterate the infection, have resulted in the following: First, teeth which were treated conservatively and which in the roentgenogram showed no absorption, were apecoectomized several months after treatment and the cultures have yielded streptococci. Second, the same areas were cultured four or six months later under the same condition as for doing a root amputation, and although the roentgenogram indicated absorption (due to repeated surgical interference), cultures made from scrapings yielded no bacterial growth. To my mind this shows that lack of absorption in the roentgenogram does not indicate sterility, nor does the presence of absorption indicate infection at the end or around the root of the tooth.

Dr. Frederick B. Moorehead, Chicago: The work that Dr. Black has done in his report is reassuring in that it confirms the fundamental things we have believed for some time. I examined 500 cases at the Presbyterian Hospital, Chicago, and reported my results to this section two years ago. My findings were essentially the same as those reported by Dr. Black. Considerable experience and study is required in the interpretation of roentgen films of the jaws, and even to the experienced there will be surprises now and then in the amount of pathology that will be found clinically which did not appear in the film. It must be borne in mind always that the roentgen ray is a relative agent, and while it is the most important factor in diagnosis, it requires experienced interpretation. The fact that one frequently finds more pathology on the removal of a tooth than is indicated by the roentgen ray should make us very careful in concluding from a roentgenogram that a tooth is safe.

As Dr. Gilmer has suggested, there are cases in which it is very difficult to differentiate between a dangerous focus and one that probably is not dangerous. These difficult cases, however, are more or less limited in number and the majority of films indicate conditions about which we may be more or less dogmatic. We found one very striking thing in our patients in the Presbyterian Hospital in noting that there was not a great deal of difference between the ward patient and the private patient in the number of mouth involvements. This is probably due to the fact that the poor people have troublesome teeth extracted while those of means have root canal treatment. We must all become convinced of the danger of chronic infection about the jaws and the necessity for the removal of all types of infection.

Dr. Chalmers J. Lyons, Ann Arbor, Mich.: We must not overlook the mistake that both the dental and medical professions are making today of relying wholly on roentgenograms. I am very much interested in Dr. Talbot's remarks that we should not consider the roentgenographic evidence alone. It is simply one method of making a diagnosis and I am wondering if in the report Dr. Black has made that some distinction might not be made between what he calls an abscess of the roots with poorly filled canals and an abscess of a root with well-filled canals. While the roentgenographic evidence would admit of some error, without a complete history of that particular operation, I do not see how he can classify a tooth with a perfectly or well-filled canal having an area of absorption as an abscess. If that is true, if they can be so classified, then our whole root canal work is in vain.

Dr. William C. Fisher, New York: I am very glad to hear one part of Dr. Black's report in which he studies the good and bad root fillings in order to differentiate them in reading his roentgenograms. He classifies them as cases with good root filling and those roots in which the filling did not go to the apex. This is the first time that I have seen or heard any one attempt to make that statement and I am very glad that Dr. Black has made it, because in that one point

I consider great advance has been made. Dr. Zentler's work is a step in the right direction, especially the manner in which he has investigated the bacteriologic findings. As Dr. Talbot and Dr. Lyons brought out, can we tell whether these areas that we speak of off-hand from roentgen-ray evidence as abscesses are really abscesses unless we have checked up this evidence with other work? Dr. Moorehead said the more we read roentgenograms the better are we able to interpret these facts. No mention has been made of the particular bacteria found other than what is usually found in these abscessed areas. It is a question in my mind as to just how much the system can stand in the way of the normal presence of *Streptococcus viridans* or, as Dr. Moorehead said, in the safe and dangerous zones of infection.

DR. ARTHUR D. BLACK, Chicago: I endeavored to present certain conditions that were shown by examination of 6,000 roentgenograms, and I believe I qualified that by saying that I presented tabulations of the areas of destruction of bone. Then I stated further that in order to simplify the presentation I called one group peridental destruction, and the other apical destruction. The main point I desire to impress is that over 75 per cent. of the people over 20 have destruction of bone about the roots of teeth.

I would base my judgment in deciding on the treatment of any case showing an area of destruction about the root of the tooth, on the extent of the detachment of the peridental membrane from the surface of the root. If the studies of the histologic function and pathologic changes which take place in these tissues are worth anything to us at all, they certainly tell us that where the peridental membrane has been detached and that detachment has been maintained for a time, there will not be a regrowth of this tissue. If there is a hole in the bone about the end of the root of the tooth, showing that the peridental membrane has been destroyed, then I would not bother to determine whether the area is infected or not, as it would not make a particle of difference in the treatment. If the area is not infected today it may be infected through the circulation tomorrow. I have no doubt that a considerable number of these cases go along for a long time without infection, but they certainly present ideal conditions for reinfection. Granting for the moment that by the use of drugs such an area may be rendered sterile, there could not be more than a very temporary advantage because there is no probability of reattachment of tissues to the root of the tooth. When the roentgenogram shows an area of bone destroyed immediately about the surface of the root, I believe it should be treated as though it were an abscess whether there is any infection or not.

There can be no question that the number of persons having infections of the bones about the teeth is very much larger than it ought to be. It must be less in the future, and the burden of reducing it is on the dental profession. At the same time, we must remind the members of the medical profession that there are many other regions besides the mouth in which original foci of infection occur. When we come to realize that 75 per cent. of adults have some infection of the maxillary bones, it seems that three out of every four persons, who go to the physician complaining of some systemic infection, have one or more of these areas in their mouths. I am afraid that too many physicians are jumping at the conclusion that the teeth are the source of the trouble, without making a thorough investigation of other regions, such as the nose and throat, the sinuses of the head, the mastoid, the gall-bladder, the genito-urinary tract, etc.

Every adult who comes to us should have a complete roentgenographic examination of the mouth. When each dentist takes on himself the responsibility of knowing that the mouths of his patients are free from infection, he will have made real progress in the prevention of systemic disease.

DR. WILLIAM C. FISHER: Do you believe that in any dead tooth perfectly filled or imperfectly filled you have this area whether it has been treated surgically or not?

DR. ARTHUR D. BLACK: It does not necessarily follow that because the pulp of the tooth dies the bone about the apex of the root will be infected. That is the natural thing to happen, but I feel quite satisfied that it does not always happen, otherwise practically every tooth with a dead pulp should be extracted. We are requiring that a roentgenogram be made of every tooth that has a dead pulp before treatment is undertaken. We are getting many films of cases with dead pulps which show no destruction of tissue about the apex of the root. It is a question of following these up for a number of years by roentgenographic examination. My judgment is that there are many cases in which there is no infection beyond the apex of the root.

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# MALARIA ENDEMICITY OF THE RICE DISTRICTS OF LOUISIANA AND ARKANSAS

## WITH SOME OBSERVATIONS ON TYPES OF MOSQUITOES BREEDING THEREIN

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AND
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LONOKE, ARK.

The selection of a site for the establishment of an aviation field amid the rice fields of Arkansas offered an unusual opportunity for the study of control methods for malaria and types of mosquitoes found

MALARIA EPIDEMIC INDEX

| Ages | Number Examined | | | Types of Infection | | | | | | | | | Total Infections, No. | Per Cent. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Tertian | | | Estivo-autumnal | | | Quartan | | | | |
| | M. | F. | Total | M. | F. | T. | M. | F. | T. | M. | F. | T. | | |
| **Arkansas, January, Lonoke District** | | | | | | | | | | | | | | |
| 1 to 10..... | 212 | 212 | 424 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 |
| 11 to 15..... | 216 | 216 | 432 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0.4 |
| 15 and over | 513 | 596 | 1,109 | 1 | 3 | 4 | 2 | 2 | 4 | 0 | 0 | 0 | 8 | 0.7 |
| | 941 | 1,024 | 1,965 | 1 | 4 | 5 | 3 | 2 | 5 | 0 | 0 | 0 | 10 | 0.5 |
| **Louisiana, April, Gueydan District** | | | | | | | | | | | | | | |
| 1 to 10..... | 31 | 22 | 53 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1.8 |
| 11 to 15..... | 33 | 15 | 48 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4.1 |
| 15 and over | 257 | 59 | 316 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0.6 |
| | 321 | 96 | 417 | 4 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1.1 |
| **Arkansas, May, Lonoke District** | | | | | | | | | | | | | | |
| 1 to 10..... | 254 | 219 | 473 | 4 | 3 | 7 | 1 | 0 | 1 | 1 | 0 | 1 | 9 | 1.9 |
| 11 to 15..... | 77 | 114 | 191 | 3 | 2 | 5 | 0 | 1 | 1 | 0 | 0 | 0 | 6 | 3.1 |
| 15 and over | 782 | 716 | 1,498 | 8 | 3 | 11 | 8 | 1 | 9 | 0 | 0 | 0 | 20 | 1.3 |
| | 1,113 | 1,049 | 2,162 | 15 | 8 | 23 | 10 | 1 | 11 | 1 | 0 | 1 | 35 | 1.6 |

breeding in this environment. We realized that the control methods must of necessity be of a varied character, but agreed that the control of the human carrier along with the mechanical protection of good screening were most important within the limits of mosquito flight. Therefore the initial step was a sanitary survey to correlate all methods in the 3 mile zone designated as the extracantonment zone, Eberts Field, Lonoke, Ark. This included the town of Lonoke, and work was begun in January, 1918. In addition, absolute control of the breeding of mosquitoes outside of the rice fields was to be sought. The area within which mosquito control measures were taken comprised approximately 12 square miles, the center of which is the aviation field and the town of Lonoke. In the west and south, in this district, rice is grown, the area under cultivation being 2 square miles. From the buildings of the aviation field, the first rice fields are at a distance of 1 mile on one side and three-fourths mile on the other, and just 1,500 feet from the field limits. Rice fields adjoin the town

of Lonoke on three sides, several being within the corporate limits.

### MALARIA ENDEMICITY

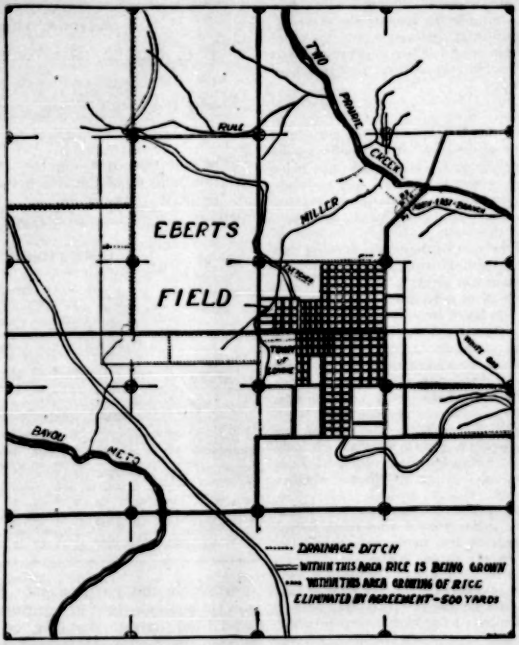
The history of chills and fever for the previous summer gave a malaria incidence index which affords probable important data for the extracantonment zone, Eberts Field, and offers an interesting parallel to similar observations and the data obtained in the rice fields of Louisiana. The total incidence of malaria from history alone in the combined rural and town population in both the Louisiana and Arkansas districts is, curiously, the same, approximately 29 per cent. A slide endemic index (thick smears) taken in January, April and May gave remarkably low percentage results, as shown in the accompanying table.

*Technic of Staining.*—1. To 100 c.c. of ethyl alcohol, 1.3 c.c. of hydrochloric acid are added. The slides are placed in this solution for three or four hours, that is, until they become a ground glass color. They are rinsed in running water for five minutes. The time in acid is relatively dependent on the age of the blood smear.

2. (*a*) To 100 c.c. of distilled water, 3 c.c. of 1 per cent. polychromethylene blue solution are added. The slides are placed in this solution for four minutes and then rinsed in running water for one minute.

(*b*) To 100 c.c. of distilled water, 2.6 c.c. of 3 per cent. eosin solution are added. The slides are placed in this for one minute, and then rinsed in running water for one minute.

(*c*) The slides are dipped in the polychromethylene blue solution for one minute, and then rinsed in running water for one minute, dried and examined.




Extracantonment zone, Eberts Field.

Meyer[1] reports almost a negative endemic index taken in the spring months in California. Kelly and Geiger,[2] working practically in the same district but in September, report an index of 4.7. When one considers the number of persons in the rice districts under our investigation giving a history of chills and fever for the previous summer and the small number proved positive on microscopic examination (thick smears), then one can assume that there are several factors to be considered:

1. In an endemic index taken in the spring months, the number of carriers discovered will probably be small. An endemic index varying so much at different seasons is not indicative of true malaria conditions and never should be judged accordingly. Nevertheless, the discovery of carriers, though small, is evidently a potent factor in the malaria rate for the coming summer. This is borne out by the fact that up to Sept. 1, 1918, no new cases of malaria have been reported in the extracantonment zone, Eberts Field. Therefore the value of an endemic index is obviously limited to a human control measure in this investigation.

2. A history incidence index for the previous summer is not reliable if the microscopic index (thick smears) is to be taken as indicative of true malaria conditions, though several factors may influence the results, namely, the use of quinin as a preventive for common colds in winter and the constant use of chill tonics through the winter months, which is true of the Lonoke district from daily observations of druggist sales since Jan. 1, 1918.

3. The large number of patients having malaria, as judged by the history incidence index, were completely cured of the disease by attending physicians. We know this not to be true, the diagnosis never being checked microscopically or the case followed to completion.

4. Temperature and season evidently have an effect on the malaria carrier rate.

The different results in the January and May indexes on the same persons illustrate the intermittence of the malaria carrier along with the seasonal variance even when we consider the possibility of our missing the plasmodia on examination. This point is forcibly brought out by the fact that three schoolchildren whose blood was found negative in both indexes were proved positive carriers after having taken their initial dose of typhoid vaccine, the chill and rise in temperature almost immediately following. Two boys, aged 8 and 10 years, respectively, who

1. Meyer, K. F.: Sources of Malaria in California, Tr. Commonwealth Club of California, San Francisco, 1916, 2, 22.

2. Kelly, F. L., and Geiger, J. C.: Endemic Index of Malaria in the Northern Sacramento Valley, California, The Journal A. M. A., May 5, 1917, p. 1319.

gave a history of chills and fever for three previous summers with a gradual cessation of active symptoms and whose blood smear was negative in the January index, were proved positive in the May index. Their blood examined daily for one month, no quinin being given, gave in one only two additional positive results and three in the other. The plasmodia in both instances could be considered very resistant to the stain.

Since this investigation started, there have been reported by physicians for Lonoke County 642 cases of malaria with one death. No reports are available or reliable for the previous years, and this number is probably indicative of true conditions. For instance, in the same period in the past year seventeen deaths (eighteen for the entire year) were reported as being due to malaria. The mosquito control, though perfect since March, 1918, in three other areas in Lonoke County and partially so in the extracantonment zone because of rice fields, cannot be considered a factor in reducing the number of deaths because of its own obvious limitations to small areas, even though these are centers of population. The immediate and only cause in the reduction of deaths from malaria is probably a better and more complete diagnosis of the patient's illness by the physician, the intensive educational campaign carried on here having its maximum effect.

### MOSQUITO OBSERVATIONS

For purpose of comparison, the following observations made in Louisiana in the Gueydan District in 1917 are given:

Observations were begun, June 1. On large rice fields, ten days after irrigation, mosquitoes were breeding in public health quantities.

Successive catches in June showed only *Anopheles crucians* and *A. punctipennis*, the former about twice as abundant as the latter. *A. quadrimaculatus* was first found in the latter part of June, and by July 10 had superseded all others. These observations as to breeding were checked by catches of imagos in nearby barns. During the latter part of June and the first of July, salt water entered the Louisiana canals. In a field containing this water, showing from 12 to 23 grains of salt per gallon, *A. crucians* was the only anophelene present.

### EXTRACANTONMENT ZONE, ARKANSAS

Ditching and oiling had established practically a perfect control of mosquito breeding early in March. This control was maintained continuously in the extracantonment zone. The observations by months may be thus summarized:

February—*A. punctipennis* was observed biting, February 26, in Lonoke and in the aviation field. Two females and three males were captured. No breeding was found.

March.—No breeding of *Anopheles* was found; no imagos were seen.

April.—Two imagos of *A. quadrimaculatus* were caught in town, April 17-20. *A. crucians* was breeding in rain barrels outside of town.

May.—There was a small amount of breeding (chiefly *A. quadrimaculatus*) in ditches. One imago was captured in a house. There was breeding of *A. quadrimaculatus* in moderate abundance outside the extracantonment zone.

June.—June 5-8, *A. quadrimaculatus* was breeding in moderate abundance in the rice fields about 1 mile from town. Imagos were abundant in nearby barns and were found biting in town, June 8-12. June 20, *A. quadrimaculatus* was again breeding in the same rice fields, and imagos again were numerous in nearby barns and found biting in town a few days later. One *A. punctipennis* was caught in town, June 25.

The early appearance of *A. punctipennis* (February 26) may be due to hibernation (1) of adults, (2) of larvae or pupae, or (3) from eggs laid early. It is worth while to note that temperatures were relatively high in the second week of February, the "mean" temperature varying from 48 to 66 F.; then colder for the third week (means, 26 to 54), and warmer again in the third week, when the mean temperature varied from 40 to 66, the highest single reading being 87 F., February 25.

*A. quadrimaculatus* has been the only anophelene found in public health quantities. Rice fields situated 1 mile from Lonoke and a greater distance from the aviation field were the only places within and over reasonable flight distance where breeding could be found at certain intervals. Several days following these observations large numbers of imagos were caught in nearby barns where none could be found previously, and simultaneous catches were made in houses in town and in the aviation field. Therefore the obvious maximal flight distance judged by these concomitant catches was more than a mile.

It is interesting to note that when water became "dead" on rice fields, through partial draining, or by stopping of pumps, *A. quadrimaculatus* was apparently superseded entirely by culex forms, though only an occasional culex could be found on this field when *A. quadrimaculatus* was abundant. Up to Sept. 1, 1918, no infected mosquitoes were found, though many were dissected.

Samples of wet mud from puddles and rice fields recently drained were examined for surviving larvae and pupae. The results were negative. In drained rice fields and puddles, water was found to remain in deep crayfish holes. These were pumped and examined for larvae. Five such samples were negative, and two contained numerous culex larvae.

### CONCLUSIONS

1. The control of the human carrier plus the factor of good screening have, so far, made negligible the malaria incidence in a typical rice district. As it is not yet humanly possible to obtain absolute mosquito control in the rice fields, these measures are indispensable.

2. The persistent breeding of *Anopheles quadrimaculatus* in the rice fields and the repeatedly recorded "obvious flight distance" of this mosquito of more than a mile emphasize the necessity of the foregoing measures. The observation that culex superseded anophelenes in "dead" water in the rice fields deserves further study.

3. The positive indications of breeding in crayfish holes, which abound everywhere, is suggestive enough to offer a simple solution to the sudden appearance of large larvae or pupae in puddles after rains, which before were dry.

4. The history incidence index in two widely separated rice districts is the same. The incidence, though less than one would expect, is probably representative. The average incidence in schoolchildren taken as a unit invariably equaled that of the community as a whole, indicating strongly their availability for experimental index work and the obtaining of data.

# DISINFECTION OF THE KNEE JOINT *

ROBERT B. COFIELD, M.D.
CINCINNATI

Whether in civil or military practice, it is generally conceded that septic infection of the knee joint is one of the most serious conditions that the surgeon can be called on to treat, endangering, as it does, both the future usefulness of the joint, and at times, the very life of the individual.

In civil experience we have formerly been led to a profound distrust of the ability of this particular articulation to deal with infective processes. In septic arthritis, an arthrotomy was usually advised and drainage tubes or wicks were inserted into the joint cavity, or through and through drainage was established and the tubes allowed to remain for at least a number of days. Besides producing an evil mechanical effect on the synovia and cartilages, the drainage material provided an ideal reservoir for the pabulum in which the organisms could multiply and travel from within outward, spreading infection to the para-articular structures, or from without inward, carrying secondary infection from the skin into the joint cavity.

The anatomic structure of the knee joint is such that when it is severely infected over its whole extent, drainage becomes a serious and difficult matter, and even though skilfully done, it is a most unsatisfactory procedure, often resulting in the tracking of the infection along the muscular and fascial planes, above or below the joint, with the accompanying dangers of septicopyemia and severe damage to the joint structures, resulting in ankylosis.

## CONDITIONS NECESSARY FOR FAVORABLE RESULTS

The results achieved in the present war, in treating infected wounds of the knee by disinfection and immediate closure, have been the source of much surprise and satisfaction. Favorable results, however, with restoration of joint function, seem to depend on the observance of certain principles which are doubtless of equal importance in treating septic arthritis of autogenous origin:

1. The operation must be done early, before the spread of infection and the disorganization of the joint structures have had time to occur.

2. Thorough lavage of the infected and contaminated areas, followed by primary closure of the joint capsule, is essential.

3. Foreign bodies must not be allowed to remain within the joint cavity.

4. When drainage is used at all, it should be carried down to the capsule but not into the joint cavity.

5. Immobilization of the joint must be secured by adequate mechanical fixation.

In order for a surgeon to carry out these principles effectually, it is of the utmost importance that a diagnosis of suppurative arthritis be made early in the course of infection. This is not often difficult, since the joint involvement usually accompanies or follows a focal or general infection, originating elsewhere in the body, such as, gonorrhea, tonsillitis, otitis media, scarlet fever, pneumonia, etc.

This form of arthritis may be secondary to a serous synovitis or it may start without any obvious serous stage. The septic joint is often ushered in with a chill, the temperature is elevated, the capsule becomes distended with fluid, and the joint is inflamed and painful and is held in a semiflexed position by the spasmodically contracted muscles.

Every joint that shows evidence of inflammation and effusion, during the course of a focal or general infection or following it should be aspirated under strictly aseptic precautions for diagnostic purposes. The nature of the aspirated fluid will be a very definite guide as to the proper course to pursue.

The bacteriologic side of the investigation so often fails to reveal the presence of micro-organisms in the joint fluid, either in smears or cultures, that considered by itself, it carries little weight, and negative findings in this regard should not influence the course of our treatment.

The cytologic investigation of the joint fluid, however, is a distinct aid to the diagnosis, and at times will materially influence the prognosis, in joint effusions. A high percentage of polymorphonuclear leukocytes found in a sample of the aspirated fluid will afford positive evidence of a septic condition. The normal synovial fluid from the knee joint is acellular. Pus, which consists of practically 100 per cent. polymorphonuclear leukocytes, is a surgically visible sign that infection of the part has occurred and calls for prompt surgical intervention.

## TECHNIC OF DISINFECTION

The technic which I have followed in disinfecting the knee joint is briefly as follows:

The knee is prepared the day previous to operation by being shaved and scrubbed and wrapped in sterile dressings. After the patient is anesthetized, the field of operation is further sterilized with benzin and iodin. An incision 1½ or 2 inches long is made parallel to the inner or outer border of the patella, extending into the joint cavity. If found desirable this incision may be extended to facilitate a more complete exploration of the joint. By means of a gravity syringe, placed high enough to give the stream considerable pressure, the joint cavity is now thoroughly flushed for fifteen or twenty minutes. Instead of using the sterile glass tip, commonly attached to the tubing leading from the container, it is better for the operator to use a soft rubber tip which may be inserted into the various recesses of the joint without the danger of injuring their delicate lining.

Various solutions have been used with success for disinfection of septic joints. Some operators even assert that the results do not depend on the nature of the solution employed, but rather that it is the thorough mechanical cleansing which is the important factor. However, since it has been shown that the synovia and cartilage withstand very well the active disinfecting agents, and since the pathogenic organisms are harbored within the synovia and para-articular tissues, and not in the joint cavity, I prefer to use an active disinfectant which possesses a penetrating as well as a cleansing action. Mercuric chlorid, 1:15,000, in salt solution, as suggested by Dr. Cotton of Boston, maintained at a temperature of about 115 F. and this followed by physiologic sodium chlorid solution, has proved very satisfactory.

Since the capacity of the synovial cavity of the knee joint reaches its maximum when the leg is flexed to an angle of about 25 degrees, and since the contents of some of the bursae communicating with the joint

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

are most easily emptied when the limb is in a semiflexed position, it is very important that flexion and extension of the joint should be passively carried out while the cavity is being flushed. This will aid materially in ridding the joint of the necrotic material and pus that have accumulated in these various pouches. It is also advisable repeatedly to press the edges of the wound close about the tip of the syringe in order that the fluid may distend the joint capsule and penetrate and flush out its various recesses.

The objects sought by arthrotomy and irrigation of the joint cavity are:

1. Relief of the intra-articular tension, which doubtless has a deleterious effect on the synovial membrane and cartilages through its interference with the circulation and the normal secretory function of the synovia.

2. The removal of the necrotic material which acts as a culture medium within the joint cavity. The nature of this material precludes its removal by means of the trocar or an aspirating syringe.

3. The cleansing and disinfecting action on the synovia, which aids it materially in regaining a normal function and renewing its fight against infection. The synovial membrane, like other serous membranes, has an enormous capacity for combating infection if it is in a fairly normal condition.

After disinfection, the capsule is closed with catgut sutures, and if a drain is used at all, it is placed outside the synovial membrane for the sole purpose of taking care of the extracapsular infection. The wound is closed in layers and the joint is thoroughly immobilized, preferably by a plaster-of-Paris spica including the foot.

A fenestra may be cut over the knee and if an increase in the inflammation and effusion should occur, aspiration may be repeated, depending on the nature of the fluid as to the future course of procedure. It is not frequent, however, that any further difficulty is encountered. The temperature and pain usually subside within a few days, and the joint gradually resumes a normal condition.

### POSTOPERATIVE MEASURES

The limb is maintained in a position of physiologic rest until the wound is entirely healed and all signs of inflammation have disappeared. The patient is then given the privilege of active motion once or twice a day, depending on the sense of pain as a guide to the extent of movement. Later, gentle passive motion, along with heat and massage, will often hasten recovery, but at first the utmost gentleness is necessary in order to minimize the risk of exciting a recrudescence. The absence of signs of inflammation does not always assure the absence of pathogenic organisms, and well meant efforts to establish mobility may set up an active condition within the joint, if passive motion is applied too vigorously or begun too soon.

Should fibrous adhesions form, which we feel reasonably sure are periarticular, they may be broken down by forced manipulations, with the patient under full anesthesia, in order to secure complete muscular relaxation, thus permitting the movements to be carried sufficiently far in all directions.

Intra-articular adhesions are best treated by gradual correction by means of suitable mechanical appliance, since rough handling is followed by further damage to the joint structures and still greater limitation of movement within the articulation.

## ABSTRACT OF DISCUSSION

DR. CHARLES A. PARKER, Chicago: The extremely important point of the paper is that immobilization of a joint is the greatest factor in the saving of mobility. In four or five years' experience in the Cook County Hospital I have never opened a knee joint for sepsis, and I think I have never punctured one. The intern sometimes does that for me, before I know it, and gets information, more or less complete. The fluid is usually sterile, as Dr. Cofield stated. During that time we never had a patient die from knee infection or the knee infection get worse. We have had bad knees, of course—tuberculous in type, or otherwise; but that does not mean that a septic knee should not be opened sometimes.

In regard to washing out the joint, I have had no experience with it. Any antiseptic is out of place in a joint. As to any antiseptic entering living membrane and killing bacteria between live cells and getting out again, leaving the bacteria dead and the cells alive, that would be a new and interesting experience.

DR. JOHN P. LOBB, Omaha: There are infections and infections of the knee. The milder infections can be treated in various simple ways; but the more extreme and more malignant infections are very grave propositions. Unfortunately, we often see these cases after very destructive changes have taken place. Of course, it is our desire always to see them sooner, before irreparable damage has been done.

I wish to commend this paper. I think it is very safe to follow. Unfortunately, these conditions are too often attacked in a sort of by-guess and by-gosh fashion. Dr. Cofield has made a very valuable contribution to this subject, and dealt with it very rationally. His method of leaving the joint without foreign material in it is very important. I have felt that there is some advantage in a weak antisepsis. Perhaps the mechanical cleansing, the irrigation and relief of tension is the chief factor. It seems to me that we might learn something, also, from the recent technic of delayed primary sutures. I understood him to say that if we leave a vent, but not a drainage tube or gauze, merely leaving it sufficiently patulous for a suture, that will perhaps prevent the necessity of resorting to drainage. I think that this technic is too often neglected. We frequently leave the case with uphill drainage. If we have opened on the front, it is only reasonable that we turn the patient on his face and get the advantage of gravity. In the cases reported by Dr. Cofield, there may have been a large number of rather innocuous types of mild infection, which would go through their course without severe infection in any event. It requires a nicety in discrimination to determine whether more radical procedures may be necessary; but it seems to me that if we adopt the principles laid down by Dr. Cofield, and possibly supplement them, that it may be of advantage and we may save function in cases in which we have hitherto had a considerable number of stiff knees.

DR. ALBERT H. FREIBERG, Cincinnati: Perhaps, because so many knee joint infections are caused by gonorrhea, I am reminded of the opening sentence in Ricord's book on gonorrhea, written many years ago. He started his book in true dramatic French fashion by saying, "A gonorrhea begins; God only knows when it will end!" The same thing is true of joint infections, in a way. So many of them start in a quiet, harmless sort of fashion; but no one knows in the beginning where they are going to end. No one knows how far the vital structures of the joint are going to be damaged, or how serious the infection is going to prove. Of course, the very beginning is the time when surgical intervention can accomplish most for the patient. Over fifty years ago, in the absence of bacteriologic assistance, Volkmann described several types of joint infection, which he classified, according to the knowledge of the day, as catarrhal, suppurative and phlegmonous arthritis. A catarrhal arthritis was one that subsided without any intervention except rest. If the joint fluid were removed it was slightly turbid, but more or less serous in character. There were all gradations, from this to the frankly purulent material, which, of course, constituted the suppurative arthritis. Then there were cases in which not only was there pus in the joint, but which were characterized by the very early destruction of the vital joint structures, particularly the car-

tilage; and these were the ones in which there was definite sepsis and true ankylosis afterward. Now Dr. Cofield's experiences are shared by me. We have both done the same kind of thing, and I think that he agrees with me that not every joint infection can be successfully treated by this method; but we both feel that we have rescued joints from serious and perhaps permanent damage by early intervention of this kind, on the one hand, and, on the other, if a joint by reason of the seriousness of the infection is destined without surgical intervention to be crippled, we feel that the effort to clear the joint of this material does not in any way make the patient's chances for complete recovery worse. Dr. Cotton has shown that joints are more tolerant of infectious processes than we used to believe, and that it is possible for a joint, if given a chance, to overcome grades of infection which we formerly regarded as practically fatal, so far as future usefulness was concerned. But it seems to me that there is a suggestiveness in this effort to save joints in this way which may be of great use in future work; it opens a field for the investigation of the character of the infections, so that if this work is pursued faithfully and with some system, we may before long be able to say, by obtaining fluid, which joints we are going to be able to save by surgical intervention, and in which joints there is no likelihood of this; in which joints it is unnecessary to attack surgically, and in which it is necessary. This is the most important aspect of the work which Dr. Cofield has reported this morning.

Dr. Robert B. Cofield, Cincinnati: I did not want to take the time of this section to go into a detailed case report. Our cases have not been numerous. We probably have had only eight or ten knee joint infections in the last two years in which we felt justified in applying this technic. The important factor is to be able to judge which joint justifies this operation and which will get well with immobilization and treatment. I do believe that in practically all joints that show inflammation and effusion we are justified in aspirating the fluid. It can be done with very little pain to the patient. I have never seen an infection or an increase in inflammation resulting from it if it is done under strict aseptic precautions, and, while the fluid rarely shows any bacterial growth, nor are bacteria visible in the smear, we can tell by the nature of the fluid, the cell count, the great number of polynuclear leukocytes, whether it is a septic joint or not. I think that in all of those cases that show a great increase of polynuclear leukocytes we are justified in opening the joint and following the technic the paper describes. I do not think that we should feel that we should not interfere, because the patient is not going to die from his joint infection. What the patient wants, and what we want, is a good, movable joint. If the inflammation is allowed to go on, the synovia soon suffers, the cartilage degenerates and breaks down and we have a joint that may result in more or less complete ankylosis; therefore, we should not wait until the roentgenogram shows positive changes. It is too late then to expect to get a perfect result. The operation must be done early. It is unfortunate that a great many of the cases we see in the public or general hospital come after there has been destruction of joint structures sufficient to make it impossible to get complete mobilization of the joint afterward. In private practice I have been more fortunate. I have had quite a number of cases showing purulent infection that recovered complete motion in the few months following operation.

As to using an antiseptic in a joint, our experience has not shown that a weak antiseptic, such as I described, is deleterious to the joint structure. Whether it is efficacious or not I am not able to say. As I stated, I prefer to use weak bichlorid, followed by saline, because we have obtained good results from it. In one case of prolonged infection in a child I used ether as advocated by some of the surgeons abroad, and in that case I had the joint open up and discharge pus for a short time, and the result was not so good as in the cases in which I used flushing with weak bichlorid solution. Of course, one case does not prove anything, and this case might not have done so well under the other technic.

As to draining these cases extracapsularly, I think that this will depend a good deal on our judgment as to the invasion of the infection into the periarticular structures. It does not do any harm to put a little silk worm drain or rubber tissue drain in—not into the joint cavity, but into the periarticular structures—and remove it on the third day. This leaves a vent; and if purulent infection is bound to discharge, it will have a free passageway. As Dr. Lord has suggested, in those cases that come to drainage, they should, of course, be placed in the most favorable position.

## ORTHOPEDIC OPERATIONS ON THE HAND*

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Unusual as the opportunities are for reconstruction work on the upper extremity, they are counterbalanced by an adequate amount of technical difficulties. To overcome these, investigation into numerous questions of a theoretical as well as a technical nature becomes necessary.

Some detail work has been devoted to the solution of surgical problems; much less attention has been given to the study of the principles of a mechanical or a physiologic nature. Yet it would seem that mechanical and physiologic analysis is as essential for systematic progress in this field as it is in other fields of surgery.

Conditions existing in the wrist and hand compare favorably with those of the foot and ankle for several reasons: The muscle supply is more abundant; there is, as shall be shown presently, a greater possibility of detaching muscles of the hand and forearm for the purpose of transplantation, by virtue of certain anatomic peculiarities of the tendons; there is also the absence of the influence of gravity and weight bearing; and there are unusual possibilities of improving function by way of muscle reeducation.

I have been attracted to reconstruction work on hands in different orthopedic conditions, for the last two years. A point that struck me early in the work was the necessity of ascertaining and recognizing certain mechanical and dynamic conditions governing the function of the hand and the fingers.

### PROBLEM 1. THE POSITION OF DORSAL FLEXION OF THE WRIST

Robert Jones considers this position as a surgical axiom and adds that all injuries of the wrist should be treated in dorsal flexion. The grip of the fingers is diminished if the wrist turns into palmar flexion. We find this point thoroughly substantiated by theoretical considerations as well as by experimental studies. With the wrist in hyperextension, the tonus of the flexor muscles is such that the greatest amount of muscle power can be displayed per unit of contraction. As the wrist goes into the flexion position, the gripping power of the fingers gradually decreases, owing to the gradual loss of tension of the flexors. With the wrist in full flexion and the fingers extended, I have found, as reported on another occasion, that fully three fourths of the potential contractile power of the finger flexors has been exhausted.

It is equally essential and necessary that the wrist joint, once brought into hyperextension, should be

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

† Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of eight case reports and the illustrations. It will appear in full in the Transactions of the section and in the author's reprints.

held there rigidly so as to provide a firm stabilizing position.

As we turn to the anatomic study of the musculature of the wrist, we recognize the latter to be especially designed for this purpose. There are two flexors of the wrist, the flexor carpi ulnaris and radialis; there are three extensors of the wrist: the two extensors carpi radiales and the extensor carpi ulnaris. In addition to this the extensor pollicis and indicis proprius act as accessory extensors of the wrist by virtue of their connection with the second metacarpal.

According to Frohse and Frankel, the volumetric total strength of the extensors of the wrist bears to that of the flexors of the wrist the ratio of 2:1, there being not only a numerical but also a great dynamic preponderance of the extensors over the flexors.

This fact admits of only one interpretation: There exists, first of all, a very considerable amount of muscle power for the purpose of stabilizing the wrist joint by concerted muscle action before the gripping power of the fingers can be displayed to the best advantage. The muscle being unevenly distributed about the wrist, it is obvious that in concerted action equilibrium is obtained only when the power of contraction in the weaker group—the flexors—is increased by hyperextension, and in the stronger group—the extensors of the wrist—is decreased by contraction, so that in this state of tension the dynamic values of both groups become more equal. And not only is it necessary to carry the wrist into this position of hyperextension, but also one must take care that this position be maintained firmly and with considerable stability, either by muscle action or otherwise.

I have been guided by these considerations when attempting the repair of deformed hands or contracted hands. Clearly the best solution would be if the wrist, after the contraction had been released, could be endowed with sufficient muscle power to be held actively in the desired position. In regard to the transference of power, the muscles of the hand have this decided advantage over some muscles of the foot, that they are not so much bound down by mesotendinous attachments and therefore permit freer exchange and larger displacement. This is true especially of the extensor group, but also of the flexor carpi ulnaris and to some extent of the flexor carpi radialis.

I have no doubt that many cases of flexion contraction or drop hand will lend themselves to the application of tendon transference with favorable result. Such transplantation should be carried out for the benefit of extension power of the wrist in the first place, and the tendons should be anchored accordingly. It is hard to see how a direct transference of muscle power from a flexor muscle to the paralyzed extensors of the fingers can do any practical good unless the extension of the wrist itself is taken care of first.

In many more cases, however, I believe that the muscle power available for transplantation is not sufficient to secure a stabilization of the wrist in the extension position. The situation parallels very much the one in the paralyzed ankle. Here, too, the first mandate of proper function is stabilization, and it is generally found that much better results are obtained by complete stabilization of the ankle than by incomplete and insufficient transference of muscle power. The same principle is applicable to the wrist for the reason that complete stabilization of the wrist in the desired position, even at the exclusion of any motion, is preferable to incomplete motility.

Following are a number of cases in which incomplete motion of the wrist was sacrificed in order to obtain complete stabilization in correct position (five cases).

CASE 1.—H. W., man, aged 25, admitted, Jan. 3, 1918, had traumatic paralysis of the musculospiral nerve following a compound fracture of the humerus, seven years before. Contracted drop hand with shrinkage of the extensor muscles of the wrist. Owing to the length of time elapsed and the total waste of muscles involved, no nerve repair work was attempted. Correction of the drop hand was carried out by arthrodesis of the wrist in hyperextension. Following this a tendon transplantation was done. The flexor carpi radialis was turned outward around the radius and united to the extensor carpi radialis longior and brevior. The flexor carpi ulnaris was carried through the interosseous membrane between the radius and ulna and united to the tendon of the common extensors of the fingers. Five weeks after operation, the wrist was rigid in hyperextension. The grip of the fingers was good and improving daily under after-treatment. The transplantation of the flexor carpi ulnaris to the extensor of the fingers secured a fair amount of active extension of the fingers, sufficient for the opening of the fingers.

### PROBLEM 2. HYPEREXTENSION CONTRACTION OF THE METACARPOPHALANGEAL JOINT

Extreme flexion of the wrist greatly enhances the occurrence of claw hand deformity. It increases the tension in the extensor muscles and, with the wrist and knuckles as fixed points, the full extensor action is brought forth to produce and to maintain hyperextension in the metacarpophalangeal joints. This position is very difficult to overcome for the finger flexors and lumbricales, as can readily be seen in deformities of Volkmann's ischemic contracture (two cases).

The difficulty of overcoming the hyperextension of the metacarpophalangeal joint is demonstrated by the following case:

CASE 7.—F. A., woman, aged 25, admitted, July 27, 1917, had had the forearm severely lacerated up to the elbow by getting it caught in a steam roller, six months previous to admission. At the time of admission the hand was bound down in flexion by tendon contracture. The metacarpal joint was in strong hyperextension. There was flexion of the middle and end phalanges and pronation. July 28, 1917, plastic lengthening of the flexor muscles of the wrist and fingers was performed. Complete extension of the wrist and complete extension of the fingers was obtained after this operation, but the hyperextension in the metacarpophalangeal joint was not improved. For the relief of the latter condition two further operations were performed, both intending to relieve the contraction of the finger extensors over the joint by tendon lengthening. But the extensor muscles of the fingers were found transformed into a mass of scar tissue in which the individual tendon could not be differentiated. Finally, as both attempts failed to release the contracted joint, the plan of Dr. R. Meisenbach for a similar condition in claw foot was adopted. A longitudinal incision was made over the dorsum of the first, second and third metacarpals, and an osteotomy was performed, about one-half inch proximal to the joint. The fingers were then bent down forcibly, allowing the fragments to kink. In this way a better closure of the fingers was obtained, although the metacarpophalangeal joints themselves remain unchanged. The result of this operation has been much more satisfactory.

### PROBLEM 3. RECONSTRUCTION WORK OF THE THUMB

Reconstruction work of the thumb was carried out for the relief of (1) inability of opposition of the thumb, and (2) inability of extension of the thumb. In the first instance the gripping power of the hand

is greatly impaired, as the thumb cannot be used to oppose the fingers, while in the second instance the gripping power of the hand is also impaired by the fact that in closing the hand the thumb is thrown under the fingers, preventing the hand from taking hold of any object (six cases).

### CORRECTION OF INABILITY TO EXTEND THE THUMB

CASE 10.—A. R., boy, aged 12, admitted, Jan. 18, 1917, had spastic paralysis. The hand was only slightly paralyzed, with the exception of the extensors of the thumb. The thumb was drawn under the fingers each time the patient closed his hand. Feb. 12, 1918, after the technic given by Biesalski and Mayer, an incision was made over the extensor indicis proprius of the right hand. The tendon was split at the metacarpophalangeal joint, brought out through a second incision over the long extensors of the thumb, and then fastened to the tendon of the long extensor of the thumb. After the operation the patient ceased to turn the thumb under in closing the hand, and opposition of the thumb and fingers was thereby secured.

### PLASTIC SUBSTITUTION OF RUDIMENTARY THUMB

Plastic substitution of the missing thumb was carried out first by Nicoladoni, who reported two cases in 1900 and 1903. Later Schepelman, Horhammer and others reported on cases of this kind. Nicoladoni's autoplastic substitution was carried out in two step operations, the second toe of the same side being used for the substitution of the missing thumb.

CASE 14.—R. G., boy admitted, Nov. 14, 1917, with a club hand deformity. Acording to the statement of the mother, there was an infection of the hand very early in life, followed by almost complete loss of the thumb and destruction of the distal end of the radius. On admission there was found on the radial side of the wrist a scar, to which a very rudimentary thumb, not more than one-half inch long, was drawn laterally and backward. The muscles of the thenar were preserved. The club hand deformity was corrected, Dec. 6, 1917, by resection of a piece of the ulna.

The first step of the plastic substitution of the thumb was carried out, March 5, 1918, as follows (Dr. Charles J. Rowan, assisting): A flap was prepared by a dorsal curved incision, from the dorsal surface of the thenar and the adjacent side of the wrist. Then the stump of the metacarpal bone was dissected, and the end refreshened and anchored by catgut sutures. A U shaped flap was then prepared over the seventh rib of the left side of the chest, with lateral base. Under this flap 1 inch of the rib was resected. As it was impossible to keep the rib in connection with the flap, it was removed and immediately fastened to the stump of the first metacarpal by heavy double catgut sutures. The thumb was then pulled over toward the chest, and the skin under the flap was drawn together and sewed. The flap of the chest was pulled over so as to cover the flap made from the dorsal surface of the thenar, with the implanted piece of the rib between the two flaps.

Twenty-three days later the second step of the operation was performed, by severing the flap from its base on the chest and trimming the tip of the new formed thumb.

The patient is now able to close his thumb against the tip of the fingers and to take hold of light objects.

### MUSCLE EDUCATION

From the beginning of the work of reconstruction of the upper extremity, great stress was laid on the mechanical and muscle educational side of the after-treatment. It is of considerable advantage in working on the upper extremity that there is no weight bearing and gravity to reckon with, and that the extremity can be readily protected against any undue influences of mechanical character. In every case the medico-mechanical and later the reeducational treatment was added to the surgical corrective treatment, the work beginning from one to three weeks after operation.

Following the conclusion of medicomechanical treatment, the patient enters immediately on the muscle educational work. The nurse is instructed in regard to the needs of the individual case. The work is done in groups of five or six and sometimes more, but each patient does individual work and has individual attention. No special attention is paid to the product itself which is turned out by the individual child. The children are to be taught to use their hands in a certain way most favorable to the development of power and coordination of the muscles in question.

The work begins by molding in clay, for which common plasticine is used. This has proved especially useful for those patients who need thumb practice, as the molding requires quite a little muscular strength. I believe this to be by far the most useful part of muscle educational training because the movements required are simple and more or less elementary: kneading, twisting, pressing, etc. Children with more advanced functional ability of the hand are then given instruction in raffia work, which is especially beneficial for the more coordinate movements of the wrist and hand.

Weaving, even if the pattern is very simple, requires more skilful use of the hand, and naturally only a few of the children mentioned here are capable of carrying on this kind of work. Aside from these three essential instructions, the children are given all the encouragement in the use of such playthings as might help to develop the muscles of the hand, such as blocks and puzzle pictures.

All the patients mentioned have taken part in muscle educational work and have derived considerable benefit from it.

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## ABSTRACT OF DISCUSSION

DR. JOHN L. PORTER, Chicago: Dr. Steindler's work is of inestimable value as illustrating what can be accomplished by a conjunction of correct mechanical principles and good surgery. I believe that we have been deterred from what, in the way of plastic surgery, might be very beneficial, because we have overestimated the anatomic difficulties and have decidedly underestimated the great many mechanical advantages to be secured. In one case I had great difficulty in preventing adhesions of the tendons, especially on the flexor surface of the wrist. I believe that adhesion occurred in this case because so many tendons are massed in so small an area, with very thin layers of tissue separating them. That is but one feature that prevents successful plastic work on flexor tendons. Our knowledge of this kind of surgery, and especially of the arm and wrist, will increase wonderfully from now on because the war is going to bring to our attention a lot more disabilities of the upper extremities from injury of nerves and muscles than we have seen before. Perhaps we have been deterred from doing what we could for paralytic conditions because they were paralytic; but when the cases are traumatic, we think that something must be done to insure return of the use of the hand, arm and wrist.

DR. JOHN P. LORD, Omaha: I believe that Dr. Whitman was entirely right in his conception of the principle of arthrodesis for stabilizing the ankle joint, and thus rendering more efficient any tendon transferences in cases of flail joint. It has seemed to me that this principle applied to the wrist would save us much of the more complicated and difficult part of this reconstruction of the structures about this joint. I have had considerable experience in resections of the wrist joint, and arthrodesis of that joint, done primarily to enable me to get better functional results after work on the tendons. It has also enabled me to lessen the spasms, which are

attended with certain disadvantages. In Volkmann's ischemic paralysis I have on several occasions shortened the radius and ulna. I can testify to the efficiency of that method and its advantage. I can testify to the difficulties of plastic operations on tendons about the wrist, which cases furnish many complications. I think that if we would give more attention to the correct position, by operation on the bones and joints, and secure an arthrodesis in certain of these cases, we could then, by palliative methods, after a long period, secure results that might be superior to those obtained by the more extensive complicated operations on the tendons. It has been my experience that these operations about the thumb for the transference of tendon and muscle function have been very satisfactory. They lend themselves very well to the particular deformities of the thumb resulting from paralysis, more especially as it is sometimes necessary to rotate the bone after osteotomy. I found that I could get much better mechanical position by rotating the bone so that I could get a better application of muscle power.

DR. MELVIN S. HENDERSON, Rochester, Minn.: In wrist drop due to paralysis of the musculo-spiral nerve, nerve regeneration by operation has been attempted. I recently had an opportunity of visiting the Military Orthopaedic Hospital at Toronto, which harbors 750 patients, wounded Canadian soldiers. They told me that operations for severance of the musculo-spiral nerve were generally unsatisfactory. They are inclined to believe that better results will be obtained in these cases if tendon transference of the flexors to the extensors of the wrist is done instead of the nerve anastomosis, especially if there is a defect of any extent in the nerve. Recently I operated on a man with complete wrist drop, transferring the flexor carpi radialis and flexor carpi ulnaris to the extensor tendons of the wrist. The man can now extend the wrist and has good grasping power, whereas before he could not extend the wrist and could grasp objects only in a very awkward manner. I have seen quite a number of anastomoses for division of the musculo-spiral nerve, but have never seen a good result. Therefore, it would seem as though better results would be obtained in wrist drop by transferring the flexor tendons to the extensor tendons than would be obtained by any operation on the nerve.

DR. CHARLES M. JACOBS, Chicago: A man, over 40 years of age, had a Dupuytren contraction involving the ring and little fingers. I made a careful dissection of the palmarfascia, but was unable to straighten out the little finger because of a shortened tendon; so I did a tendon lengthening. Following the operation a plaster cast was applied to hold the little finger in the extended position. The cast extended only up to the wrist. Several weeks later I noticed that the patient's hand dropped and that he was unable to extend it. The cast was taken off and I found that he had a flaccid paralysis, quite different from the ischemic paralysis which sometimes follows the application of a cast. I should like to ask whether Dr. Steindler applies casts following his operations and if he has had an experience similar to mine.

DR. ARTHUR STEINDLER, Iowa City, Iowa: I appreciate Dr. Porter's difficulties regarding adhesion of the flexor tendons. Since I have been doing an arthrodesis I have had much less occasion for flexor transplantation. The flexor tendons are not as suitable for transplantation as the extensors. I have, however, united the tendon of the flexor carpoulnaris, leading it through the interosseus ligament to the extensors of the fingers after the stability of the wrist has been secured. Otherwise, I should not consider this a good procedure. While I have not had excellent extension, I obtained sufficient extension power in the first case so that the patient could freely open and close the hand. In reply to Dr. Lord, I would say that I have already stated what he did regarding stability of the wrist. I have no experience with rotating the bone; but in those cases in which the apposition of the thumb was missing on account of paralysis of the thenar muscles, I got good results so far with the plasty of the pollicis longus, which I have demonstrated. We had not only the wrist drop, but also the opposite deformity, in infantile paralysis.

## VENEREAL DISEASE IN THE THIRTY-NINTH DIVISION *

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The problem of venereal disease in the Thirty-Ninth Division is similar to that in any other divisions in training at the various cantonments. The Thirty-Ninth Division is located at Camp Beauregard, which is situated about 5 miles from Alexandria, La., and is made up of the National Guard troops of Louisiana, Mississippi and Arkansas, augmented by draft troops from these states.

At first, as would be expected, by far the greater number of venereal cases were old ones brought in by the men from other cities. Later on, especially after the quarantine which existed between the camp and Alexandria on account of meningitis was lifted, the percentage of new cases began to rise.

### PROGRAM OF ATTACK

In the handling of the venereal problem in the Army, a certain program of attack has been prepared in the Surgeon-General's Office and is being carried out. This consists of public as well as personal measures, and is briefly as follows:

*Public Measures.*—A. Social measures to diminish temptations: 1. The suppression of prostitution and the liquor traffic in the extracantonment zones. 2. The provision of proper social surroundings and recreation.

B. The education of soldiers and civilians: 1. The education of soldiers is accomplished by: (*a*) lectures, (*b*) pamphlets and (*c*) exhibits. 2. The education of civilians is accomplished by the same measures through such organizations as the Young Mens Christian Association, the Young Woman's Christian Association, the Women's Christian Temperance Union, and the General Federation of Women's Clubs.

*Personal Measures.*—A. Instruction in prophylaxis.

B. Prophylaxis stations: 1. Regimental infirmaries. 2. Civil centers.

C. Medical care.

### WORKING OUT OF THE PROGRAM

In the handling of the venereal problem in the Thirty-Ninth Division, nearly all of these measures have been carried out to a greater or lesser extent. An officer of the Sanitary Corps has been detailed by the Surgeon-General's Office for work in the extracantonment zone. A certain amount of cooperation has been given by the city authorities in the matter of the suppression of prostitution. This has consisted mainly in the closing of most of the houses of prostitution in the so-called segregated district. We have been informed by the officer of the Sanitary Corps referred to above that this has been done in a half hearted manner, and that at least one notorious house has remained open. We have also been informed that while many women have been arrested for violation of moral ordinances, there have been no facilities at the city jail for housing them, so they have

* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

been allowed to go free with the promise that they leave town. We have also been informed that in the matter of regulating the illegal sale of liquor to soldiers there has been a great deal of laxity.

It was hoped that a hospital for the treatment of prostitutes suffering with venereal diseases would be established, and the city authorities offered to furnish a building for this purpose if the parish authorities would maintain it. As yet this has not been done, and we have been informed that it probably will not be.

In the matter of providing proper social surroundings and recreation, the Army Y. M. C. A. has been of the utmost value in the camp itself, while the officer in charge of the work of the commission on Training Camp Activities has furnished more or less healthful recreation for the enlisted men, although the officers have had to shift for themselves to a greater or lesser extent. We wish to go on record in saying that the young unmarried officer needs healthful recreation as much as the enlisted man.

In the matter of the education of soldiers, lectures dealing especially with the methods of instructing men in venereal matters were delivered by the chief of the venereal service to all of the officers in camp. Illustrated lectures were also delivered to all of the men in the camp in regimental units, and these were supplemented by instruction by the company commanders. Small pamphlets dealing with venereal disease were also distributed to all men of the camp.

The education of the civilians in the extracantonment zone in venereal matters has been nil as far as we have been able to learn.

Of the personal measures of prophylaxis, as mentioned above, the soldiers all receive more or less instruction in prophylactic measures, and are warned that while the prophylactic measures protect the individual from venereal disease in the majority of cases, if taken in time, they are not absolute preventives.

Prophylactic stations have been established in all regimental and similar unit infirmaries where the prophylactic treatment can be obtained at any time day or night. The advisability of establishing a prophylactic station in Alexandria under military control has been recommended by us and is to be put into execution in the near future.

Army Regulations provide that a man who exposes himself to the danger of venereal disease, and who fails to take the prescribed prophylaxis, shall be tried by court martial.

### MEDICAL TREATMENT

In the medical care of venereal disease, all cases are supposed to be first referred to the venereal service of the base hospital for diagnosis. Orders have been issued by the division surgeon that all men with urethral discharge be sent to the base hospital for microscopic examination of a smear, and all men with genital or other suspicious looking sores be sent without treatment for dark field examination. Before this order was issued, quite a large number of chancres were cauterized in the regimental infirmaries before the men were sent to the base hospital, rendering the finding of spirochetes impossible, and also a considerable number were so treated and syphilis not diagnosed until the secondary rash appeared.

Following the examination, men with acute gonorrhea enter the hospital and are treated there until the discharge diminishes, when they are returned to duty and their treatment continued in the regimental infirmaries under the direction of the chief of the venereal service. Chronic gonorrheal urethritis and complications of gonorrhea are treated either in the base hospital or the regimental infirmaries as the chief of the venereal service directs.

Cases of chancroid are treated in the base hospital until cured. Uncomplicated cases and complicated ones when the patients are convalescing are sent to the convalescent ward for housing and report to the venereal clinic for treatment at specified times.

All syphilitics are treated at the base hospital throughout the course of their treatment, although they are kept in the hospital only during the actively infective stage, that is, while they have open lesions. At other times they remain on duty and report for treatment at specified times.

One of us[1] has advocated a plan for the handling of venereal disease which we consider will very materially increase the efficiency of the venereal service. Briefly, this plan consists of establishing a venereal dispensary at a convenient location in the camp where all cases of venereal disease which do not need hospitalization can be treated. This plan with certain modifications has been adopted by the Surgeon-General's Office and is to be put into effect at Camp Beauregard.

In the treatment of gonorrhea, we have not departed strikingly from the classical methods. In all acute cases the men are placed in bed on liquid diet for twenty-four hours and then on light diet. The urethra is flushed once or twice daily, depending on the severity of the condition, after urination, the patient being put in a recumbent position, with a warm solution of potassium permanganate, 1:10,000. Then a 5 to 25 per cent. solution of silver "nucleinate" is instilled into the anterior urethra with an all glass syringe having a rubber tip. Rising from the table, the patient holds the solution in the urethra for from three to five minutes, when it is voided into a commode and the patient returned to bed.

In the more virulent infections the urethra is not irrigated at first, the penis being held in hot salt solution several times daily and a hot water bottle applied until the inflammation subsides, when the irrigations and the instillations are begun. Internally, sandalwood oil and large quantities of water are administered, and sedatives when required.

When the purulent discharge begins to disappear, the patient is sent to duty with the recommendation to his regimental surgeon that mild astringent solutions of zinc sulphate and lead subacetate be employed.

Recently we tried in selected cases a 1 to 5 per cent. solution of dichloramin-T in liquid petrolatum. The stronger solution proved too irritating to the urethra, but the 1 per cent. solution is giving rather encouraging results. In most of the acute cases and in some chronic ones the purulent discharge disappeared more promptly than with some other methods.

In acute posterior urethritis and acute prostatitis, the patient is put to bed, and heat is applied to the parts, with hot rectal irrigations and anodynes when needed.

Acute epididymitis is treated by placing patient in bed with the scrotum supported and an ice bag applied. In some cases the scrotum has been incised and the epididymis punctured with gratifying results.

1. Thompson, Loyd: A Plan for the Better Handling of Venereal Disease in the Army, Mil. Surgeon, to be published.

Chronic gonorrheal infections of the urethra and prostate are treated in the usual manner with irrigations, instillations and prostatic massage.

In the treatment of chancroid we have found dichloramin-T in 5 per cent. solution applied as a wet dressing of considerable advantage in cases in which there is marked secondary infection. Other cases have been treated by simply cleaning them thoroughly, touching them with 10 per cent. silver nitrate and applying sterile petrolatum, while still others have been thoroughly cauterized with nitric acid, silver nitrate stick or the electric cautery.

In the treatment of chancroidal bubo, dichloramin-T has also been of distinct advantage.

Two plans for the treatment of syphilis have been used. At first we pursued the method of treating all syphilitics by giving weekly injections of 0.4 gm. of arsphenamin intravenously and 65 mg. of mercuric salicylate intramuscularly for six weeks. If this cleared up the symptoms, a Wassermann test was made one month after the last injection. If this was positive, another course of six injections each of arsphenamin and mercury were given, followed by another Wasserman test in one month.

If the test is negative after either course, a test is taken at monthly intervals, and if it again becomes positive the course is repeated.

Recently we have been treating all so-called primary and early secondary cases by giving five daily injections of 0.4 gm. of arsphenamin and repeating the course in one month with weekly injections of mercuric salicylate until symptoms of ptyalism appear. Of course, the mouth hygiene of all patients is attended to. In all old cases of syphilis, potassium iodid is given in rapidly increasing doses until symptoms of iodism appear.

### CASES IN THE THIRTY-NINTH DIVISION

In the venereal service of the base hospital, during the eight months, September to April, inclusive, 605 cases of venereal disease were treated, of which 325 were gonorrhea and its complications, 25 chancroid, and 255 syphilis in all stages. These figures do not include all venereal cases of the division; quite a large number of cases of gonorrhea have been treated in the regimental infirmaries, and we have been unable to secure accurate data on them.

The accompanying table shows by months the number of acute cases of venereal disease which developed in the division, the rate per thousand and the number of venereal prophylactic treatments administered.

It will be noted that the largest number of new cases developed in November, when there were fifty-eight, and the smallest number in February, when there were but two. At first glance it would seem that the small number of cases in February was due to the quarantine between the camp and Alexandria, and probably it was indirectly due to that cause. On the other hand, it will be noted that a comparatively large number (399) of venereal prophylactic treatments were administered in February. In all probability this was due to the fact that while the men were not permitted to go to Alexandria, where they would be easily arrested by the military police, they were able to leave the reservation, and in spite of all that the authorities could do, prostitution flourished in the woods near the camp. Furthermore, it was usually necessary for the men to return to camp as quickly as possible, and they reported to their regimental infirmaries for prophylaxis much sooner after intercourse than when they went to Alexandria, and therefore the prophylaxis was that much more efficacious.

Of the 325 cases of gonorrhea and its complications treated in the venereal service of the base hospital, 100 were acute urethritis; 151, chronic urethritis; 41, epididymitis, acute and chronic; 5 prostatitis (this does not include the large number of cases of urethritis with more or less prostatic involvement); 22, cases of arthritis; 4, cases of stricture, and 2, cases of periurethral abscess. The longest incubation period recorded was nine days, and the shortest, thirty-six hours, with an average of four days.

The average incubation period of the twenty-five chancroid cases was eight days, the longest period recorded being sixteen days, and the shortest, two days. Six cases presented single sores, while nineteen were multiple. Eleven occurred on the prepuce alone, and one on the frenum alone. Three patients had sores on the glans penis and prepuce, and two on the glans penis, prepuce and balanopreputial fold.

In four cases there was no complication, in eight there was a bilateral inguinal adenitis, in four a right inguinal adenitis, and in three a left inguinal adenitis. In four cases there was a phimosis; three cases were complicated with syphilis and nine with gonorrhea.

ACUTE CASES OF VENEREAL DISEASE IN THE THIRTY-NINTH DIVISION

| Month | Cases, Number | Rate per Thousand | Prophylactic Treatments, Number |
|---|---|---|---|
| September | 30 | 10.53 | 247 |
| October | 29 | 4.57 | 342 |
| November | 58 | 2.90 | 744 |
| December | 31 | 1.40 | 350 |
| January | 26 | 1.13 | 99 |
| February | 2 | 0.088 | 399 |
| March | 19 | 0.87 | 866 |
| April | 12 | 0.55 | 470 |

Of the 255 cases of syphilis, 32 were primary; 155, secondary; 22, tertiary; 40, latent, and 4, cerebrospinal, including 1 paretic and 1 congenital.

Of the 32 primary cases the chancre was located on the balanopreputial fold eighteen times; the shaft of the penis, eight times; the frenum and the glans penis, twice each, and the scrotum and prepuce once each. In the remaining 233 cases, the location of the chancre, as obtained by noting the scar or from the history, was: balanopreputial fold, 31 per cent.; glans penis, 27 per cent.; shaft of the penis, 14 per cent.; prepuce, 11 per cent.; frenum, 5 per cent., and scrotum, 3 per cent. In two cases, or 0.9 per cent., the chancre occurred at the meatus, and in two more cases there had undoubtedly been a urethral chancre. In two cases of early secondary syphilis, extragenital chancres were seen. One of these was on the lower lip and the other on the cheek. The one on the cheek was seen before the secondary rash had developed, and was diagnosed clinically as syphilis; but as spirochetes could not be demonstrated after repeated trials, and owing to the fact that our Wassermann tests had to be sent to the department laboratory in Atlanta, taking from one to two weeks for an answer, treatment was withheld from this case until the secondary rash developed. The source of infection in this case was possibly an infected razor, as the patient stated he had used a razor belonging to a man he afterward learned had syphilis about two weeks before the development of the sore. Since this case was seen the laboratory of the base

hospital has become equipped to perform the Wassermann test.

It is rather interesting to note the source of infection in all of these cases, that is, where the soldier was when he contracted the disease. Of the 255 patients, 111, or 44 per cent., contracted the disease before entry into the military service; 39, or 16 per cent., contracted it after being mobilized in the smaller towns of their states as follows: 20 in the towns of Mississippi, 10 in the towns of Louisiana, and 9 in the towns of Arkansas; 58 patients, or 20 per cent., became infected in the large camps as follows: 25 each in Jackson, Miss., and Little Rock, and 8 in New Orleans; 12 cases, or 5 per cent., were contracted in Alexandria. In 17 cases, or 7 per cent., the place of infection was unknown, but must have occurred since entry into the service.

The most striking figures, however, are those of eighteen cases, or 8 per cent., which were contracted while the victims were on furlough. The reason for these comparatively large figures is that men on furlough usually are unable to take the venereal prophylaxis.

The reason for the larger figures in the mobilization camps, both in the small towns where the National Guard companies were mobilized, and in the larger camps, is probably to be found in the fact that the prophylaxis rule was less strictly enforced than in Camp Beauregard.

The incubation period of the syphilis cases was unknown in thirty-four. The shortest time recorded was two days and the longest twelve weeks, while the average was twenty-two and one-half days. It is realized that in both the shortest and the longest period recorded the patients' statements are not to be taken as absolute proof of such incubation, but in both cases repeated questioning failed to bring out other evidence.

Of the syphiloderms, the macular, roseolar type was observed 45 times; the papular, lenticular, 49 times; the moist papular or condylomatous, 10 times; pustular lesions, 6 times; palmar and plantar syphiloderms, twice each; the macular, pigmentary lesion, twice; gummas of the skin, twice, and rupia and verruca, once each.

Mucous patches of the mouth were seen fifty-three times; ulcerating gummas of the mouth, three times, and leukoplakia, once.

Marked alopecia was seen three times.

Ten cases of syphilitic arthritis were observed. This condition was diagnosed only on finding definite joint changes with the roentgen ray, or when the subjective symptoms improved under specific therapy.

Only one case of syphilitic periostitis was seen; this was of the frontal bone. Syphilitic retinitis was seen five times, and two cases of syphilis of the stomach were diagnosed.

One case each of gumma of the testicle and gumma of the submaxillary gland was observed.

It is impossible as yet to draw any very definite conclusions from our treatment. However, we have been able in 102 cases to make Wassermann tests one month after the course of six injections of 0.4 gm. of arsphenamin and 65 mg. of mercuric salicylate. Of the 102 cases, fifty-six, which before treatment gave a ++ Wassermann (complete inhibition) gave a negative reaction after treatment, and all but one remained negative for periods of from one to six months. In one case a ++ was recorded two months after the negative had been obtained. One case of primary syphilis which gave a negative reaction both before and after treatment was ++ four months later.

In ten cases the ++ was reduced to a + by the treatment, and in three of these to a negative reaction by one more course. In fifteen cases a ± was obtained after treatment when a ++ was recorded before, while twenty-one cases still showed a ++ after the first course. Six of these showed a negative reaction after a second course.

A sufficient time has not elapsed to observe the effect on the Wassermann test of the more intensive methods of treatment, that is, five injections of arsphenamin on five successive days and a repetition of the course in one month with mercury to the point of salivation.

Of the 255 syphilis patients, thirty-five have been discharged from the Army on surgeon's certificates of disability. In thirty of these the disability was due to some manifestation of syphilis which did not yield to treatment, the other five patients being discharged for other causes.

## SUMMARY AND CONCLUSIONS

The venereal problem in the Thirty-Ninth Division is similar to that in other cantonments.

There has not been the whole-hearted support of the citizens and authorities of Alexandria in minimizing the amount of venereal disease that has been shown in some cantonment cities.

The venereal prophylaxis as administered in the Thirty-Ninth Division has proved quite efficacious in preventing venereal disease.

The venereal prophylactic station in Alexandria under military control is to be established.

The use of dichloramin-T is of advantage in the treatment of certain cases of gonorrhea and chancroid.

The best method of treating early syphilis (primary and early secondary) is probably the daily injection of 0.4 gm. of arsphenamin for five days, repeating the course in one month, with weekly injections of mercuric salicylate to the point of salivation.

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## ABSTRACT OF DISCUSSION

Dr. William T. Belfield, Chicago: The United States Regular Army has been notorious the world over for its excessive venereal rate. Excluding the Philippines and China, where the rate was much higher, from 1906 to 1911 the home army averaged about 150 men per thousand per year of venereal infection. During that same period the venereal rate in the Japanese and French armies at home ranged about twenty-four, and in the Prussian and Bavarian armies, under twenty. In 1909 a timid attempt was made to introduce the so-called prophylactic treatment. Our medical men have always been regarded by the line officers as poor relations who are useful in the treatment of the sick and the wounded, but not used in their equally important function of preventing preventable disease. In 1909 the prophylactic treatment was really a joke. They used to furnish the soldiers with a packet shaped much like a cigar, and the soldier was instructed to use it after exposure. He was not commanded to use it; he could use it or not, as he pleased; and usually he did not please.

In 1912 the Army authorized the use of the prophylactic treatment not by the soldier himself but after his return to camp; and from that year on the venereal rate dropped in the Regular Army from 150 to 90 per year. According to the bulletins issued by the Surgeon-General's Office it would

seem that the regular troops in this country are still averaging about 90 infections per thousand per year.

Undoubtedly the chief reason for this excessive venereal rate is our inefficient use of the prophylactic treatment. It has been shown that when properly used in the infirmaries within an hour after exposure, that treatment constitutes an almost complete prevention. Thus, of 1,180 men who received the treatment within sixty minutes after exposure, only one showed venereal infection; 1,172 received treatment between one and two hours after exposure; of these seven were infected. Of those who received the treatment between seven and eight hours after exposure, the rate per 1,180 had run up to forty-eight. It would seem that if we cannot bring the man to the treatment within sixty minutes, the treatment ought to go with him; and he should not only be told to use it, as he was in the old days, but court-martialed if he does not use it. He is court-martialed now if he fails to report the exposure and then develops infection. An anilin dye in the ointment would reveal his failure to use it.

DR. F. M. MCCALLUM, Kansas City, Mo.: While the teaching propaganda which is prevalent through the country is of great value, in many ways I do not think it would be anything like prophylactic. When I was in Honolulu in 1907-1909, the Preachers' Alliance got an idea that they would close up the resorts where the soldiers congregated, which they succeeded in doing, and venereal disease increased very rapidly. A year after that I was sent with the Fifth Cavalry about twenty or thirty miles from Honolulu, and we still had a great deal of venereal disease. I prevailed on the commanding officer to issue an order, which the major says now is a part of the army regulations, court-martialing men who neglected their duty in this respect. We used a 1:3,000 potassium permanganate solution and a 33 per cent. calomel ointment, and venereal disease diminished by 85 per cent. Prophylaxis, if insisted on by the regimental surgeons and in the regimental infirmaries, will do the most good in stamping out venereal disease among the soldiers.

DR. V. G. VECKI, San Francisco: Formerly the words "syphilis" and "gonorrhea" were tabu in public, and anything in the way of a prophylactic was not considered. Now even cities are going to establish prophylactic stations; at least in California. Colonel Maus, of the United States Army, who really is the pioneer of prophylaxis in the Army, has finally gotten the power to do things. Formerly when the physicians of the country advanced something that would be of benefit to the public there was no power behind their recommendations. The people would not follow; but now when the power of the United States Army stands behind the use of prophylactic measures and behind the enforcement of the rules to prevent the spread of venereal diseases, something is going to be accomplished.

I am, and always have been, a great stickler for personal freedom. I certainly would not approve of certain measures which are being taken in California in ordinary times; but the main thing now is to win the war. All other interests must be put in the background; and as we cannot win the war with a diseased Army, we have to do all we possibly can to keep disease out of the Army. We must not, however, be carried away by any kind of a delusion that we are really diminishing prostitution, because that is not true. We hear all kinds of societies report that there is no more prostitution—because they do not see any more of it, and they do not know anything about it. Prostitution is only taking another form. It seems that there is some kind of an evolution. No man is satisfied to go to a common house of prostitution; he wants to go somewhere to some sort of social gathering, and very frequently prostitution is to be found there at present.

The only hope we have is in this personal prophylaxis, and you cannot expect a man to use it unless he knows that it is absolutely necessary and that it is good for him, so that we must give him instructions at the same time that we furnish him with the prophylactic. Who is going to instruct the man? The medical officer in the regiment ought to take a personal interest in the men and take them into his confidence, explaining to them in a way that they will know that these measures are taken for their personal benefit. Such instruction is badly needed.

DR. A. L. WOLBARST, New York: A few years ago a man would not have dared to say the things we are saying today about prophylaxis; he would have been accused of "compromising with vice." That was the expression that was used against those who advocated prophylaxis five or ten years ago. Today Dr. Belfield struck the nail on the head when he said if the soldier will not come to the station to get prophylaxis, the thing to do is to bring prophylaxis to him. One of the most important elements of prophylaxis has been overlooked in this discussion. I read somewhere that one of the foreign governments has adopted a prophylactic package which contains not only the ordinary prophylactic but also one or two rubber condoms. That is the most efficient prophylactic, as nearly as we can give it to the men. If we could induce every soldier to use a condom we would thereby have brought prophylaxis to him in the best possible manner. There is nothing better that I know of for prophylaxis than a rubber condom. If we want to protect these men from getting disease, let us go the limit. We ought to drop this prudishness that exists about the condom—this idea of hiding our heads in the sand and saying it does not exist because we are ashamed of it. If prophylaxis is the thing aimed at, give them prophylaxis; protect these men by the best means that we have, even if that involves the use of a condom in addition to the other things. Then when these men come back to the station give them all the prophylactic treatment you can give them.

DR. JOHN R. CAULK, St. Louis: The two great problems in venereal diseases are, first, prophylaxis with which we should all agree, and second, in the Army to institute treatment which will get the men back to duty in the quickest possible time. As to Major Thompson's paper, I have just one suggestion, and that is with reference to acute posterior involvements, particularly acute epididymitis, for which we have for some time been using small injections of horse serum, with the most remarkable effects. In every case improvement has followed. In twenty-four hours the worst cases subside under the influence of this treatment, and in two or three days the patients are up and about; we do not have to keep them off duty. Some of the other cases that we followed show practically no scar in the epididymis. We first started with 10 c.c. of horse serum injected into the muscular tissues of the buttocks; but we found that 1 c.c. or 2 c.c. does just as well. I would suggest to Major Thompson to try it in the Army. I think he will get some very encouraging results.

DR. A. E. GOLDSTEIN, Baltimore: It was stated that the best results were obtained with the prophylactic treatment when used inside of one hour after exposure. Camp Meade, Md., is supposed to be one of the best camps in the country. The length of time that it takes for a train to get from Baltimore or the nearest place in which the soldiers make visits is about an hour and a half; therefore, if a man returns from Baltimore to Camp Meade for his treatment he would necessarily not receive the full benefit of the treatment; so that in Baltimore they are establishing stations where the men can receive treatment, and good results are being obtained. The men on exposure immediately report to one of these stations, and within half an hour or forty-five minutes receive the prophylactic injection.

Regarding Dr. Caulk's mention of horse serum, we have not had any wonderful results with it, but have had good results with antimeningococcic serum. The only reason that these results have not been published is that we did not want to publish them until after trying them out thoroughly.

DR. W. J. WALLACE, Oklahoma City: I have never tried treating acute epididymitis by the use of horse serum. The treatment I have been using for years has been to incise over the most prominent part of the testicle through the layers of the tunica vaginalis and liberating the contents, which is usually a small hydrocele of the epididymis, break up adhesions and push the testicle through the incision of the tunica vaginalis, replacing it and closing the opening.

In this way, I get rid of all fluids and it prevents a recurrence. The patients generally make a rapid recovery. I perform this operation invariably in all of my private cases when I can persuade them to go to a hospital and it is the rule to perform this on all of my clinical cases at our dispensary.

Dr. A. E. Mowry, Chicago: Many men have venereal disease and will not report it because of the fact that they have to make their case public property in order to obtain treatment. If the doctor could treat the patient privately, many more of the men would take the treatment and try their very best to get rid of a disease which in the end gives them a great deal of trouble. I understand that this is being advised in the French army.

I would like to ask Dr. Thompson whether he advocates using the soluble mercurials, in big doses, two or three times a week, for the treatment of syphilis, rather than the insoluble salts. In my own experience the use of soluble mercurials in big doses has proved very much more efficacious in eradicating syphilis permanently and quickly than the insoluble salts.

Dr. W. G. Schultz, Salt Lake City: In regard to the use of mercury in the treatment of syphilis, I would like to know whether the major has used bichlorid in the salt solution intravenously? It has given good results in those cases where urgent treatment was necessary, using first one-thirtieth of a grain and increasing to one-tenth of a grain daily. In epididymitis we have found vaso puncture with the hypodermic needle good practice. The inflammation has subsided in forty-eight hours, without any horse serum.

Dr. William C. Quimby, Boston: The problem of venereal prophylaxis in the Army is a part only, although a large part, of the problem of venereal prophylaxis in civil life. The ratio of infection in civil communities of large population is infinitely greater than that in the Army. The Army, however, must draw its personnel from civil life in large measure at present; therefore, not only should we as physicians do our utmost to promote all prophylactic measures and instruction in sex hygiene in the Army, but we should also do it in civil life. Following, in a measure, the admirable steps taken by California, the state board of health of Massachusetts has secured legislation making venereal disease reportable. Of course, in the beginning such a measure has to go slowly, because of the fact that the physicians throughout the state have to form the habit of reporting. It will thus take several months, or maybe a year, before the statistics will be reliable. I think venereal disease has been reportable in Massachusetts for about three months; and even in this short time Dr. Kelley of the state board of health says that it already ranks third in the list of diseases; second only to tuberculosis and measles. This shows what an enormous incidence there is in civil life of gonorrhea and syphilis. The Massachusetts Medical Society has formed a committee to study the subject and endeavor in any way possible to aid not only the state board of health but also those members of the Army who have been delegated to work on sex hygiene questions. We have found in Massachusetts, and certainly it must exist in other states as well, that one condition which needs immediate and strenuous correction is the unwillingness of large hospitals, speaking broadly, to admit cases of venereal disease to their wards. This attitude has obtained not only in small private hospitals which are run for personal profit, but in the civic hospitals as well. We hope through the medical profession, in time, to get all the hospitals converted, so that they will be ashamed to show any unwillingness to admit a case of acute venereal disease.

In regard to combating venereal disease in civil life, insist on securing, if possible, from each patient the name of their partner, of whichever sex. In that way a great deal will be accomplished. I think this should be insisted on more especially in regard to syphilis, probably, than in regard to gonorrhea. It is now being done by Dr. Morton Smith in his syphilis clinic at the Massachusetts General Hospital, and with very good results. The donor of the infection is immediately placed under medical supervision.

Dr. E. H. Martin, Hot Springs, Ark.: In the treatment of syphilis it does not seem reasonable to give every man, no matter what his weight; the same amount of arsphenamin. The object desired in giving arsphenamin is to get the blood to become a solution of a certain strength. A man weighing 240 pounds, without extra fat, will have twice as much blood as one weighing 120 pounds. In the case of the man of 120 pounds, it is evident that he should receive only half the amount given to the larger man. I have found that one decigram of arsphenamin to every 20 pounds, approximately, of the patient's weight is always efficacious in secondary cases. Many heavy patients require eight decigrams and some a gram. I have given as much as twelve decigrams at a dose to a very large patient. I have found no harm to result in the way of increased toxicity in giving larger doses. The danger is in giving many doses rather than in giving large doses. All of the complications which have occurred in my experience followed a series of doses usually, sometimes after the second dose; but the rash and dermatitis that give so much trouble nearly always appear after a number of doses and often after small doses. In giving these large doses I find it entirely unnecessary to use mercury, which under the plan advocated by Dr Thompson nullifies the value of the subsequent Wassermann, if there is anything in the theory that mercury will sometimes bring about a negative Wassermann before a cure is established. If you bring about a negative Wassermann by adding mercury to the treatment, you do not know whether the arsphenamin has cured the patient or not; but after using large doses only until you have a negative Wassermann you may feel sure of a cure, especially if we accept the theory of the provocative effect of the drug.

Dr. Charles M. Harpster, Toledo, Ohio: In our city we were confronted with the venereal problem by a number of the large corporations. We were able to induce a number of them to permit of making a venereal survey. My office within the past year has examined over 3,000 men working for the large corporations who were sent to us for these examinations. This should be promulgated and put forward as a necessary war measure by every physician. We can then isolate those individuals that are infected, and give them proper venereal treatment.

Dr. Lawrence T. Price, Richmond, Va.: I would like to ask the major what regulations apply to the officers at Camp Beauregard on this subject. I understand that there are no regulations or exactions, and that it is left to them to abstain from sexual relations because they are officers. At Richmond the urologist sees as private patients a great many cases of venereal diseases affecting officers. These men transmit infection in the same proportion as enlisted men. The venereal situation has been very difficult for us to handle until recently. At the session of our legislature during the past winter, at least seven bills were introduced attempting to cover the problem; none of them passed.

The commonwealth's attorney of Newport News discovered an old law that stated that any person suspected of being immoral or venereally infected could be arrested and subjected to examination under the charge of being a "person of ill fame," and the disposal of the individual is being handled according to the facilities of the local health commissioners in the several cities. Since the meeting in Chicago, we have put the above into effect and I have treated over fifty cases without legal complications, and double this number of arrests have been made.

Dr. Granville MacGowan, Los Angeles: I am the executive officer of a medical advisory board which I think has more trouble on its hands than any other medical advisory board of the country. We have a million and a quarter of individuals to look after. The regulations in the selective service in regard to syphilis and gonorrhea are rather peculiar. Syphilis is no bar to service in the Army unless that syphilis has affected the nervous system, or unless there is deformity. If you were to attempt to get an army without having men who had gonorrhea you would not have an army. My belief is that not 10 per cent. of the men who reach the

age of 30 have not had gonorrhea. I mean to say that 90 per cent. of the men who have reached the age of 30 either have had it or have it. My experience may be a little different from that of other people, but I believe that one man out of every five sitting in this room is a syphilitic—that is, 20 per cent.

As to the question of the measures which we took in the state of California toward keeping down venereal diseases, it is true enough that all of these measures are impossible of enforcement when this condition exists in society. In this last year I have seen three good men receive gonorrhea for their wedding presents from the women who appeared to be of good social status and against whom nothing wrong was known; but on close investigation these women admitted that they had been infected either by a former husband or by some lover whom they had trusted. I know of two instances in which the daughters of rich men of high standing in church were allowed to marry men who had gonorrhea, because their fathers said: "These men will get over that gonorrhea. We had gonorrhea when we were boys, and it did not amount to anything." "It is not much worse," one of them said, "than a bad cold." These women were married, and they were supposed to have been separated from their husbands on account of that. One of them I know has since lost her ovaries.

The question has to be handled according to the way the majors and the colonels of the cantonments will work it out to the best possible advantage. We cannot send for the men who do not have gonorrhea.

DR. LOYD THOMPSON, Hot Springs, Ark.: Many things could be said in regard to prophylaxis in a camp of soldiers. Very frequently a man will go out and indulge in sexual intercourse, tonight, for instance, and he will not report for his prophylaxis when he comes back. Tomorrow he will get another pass and not indulge, but he will come back and take the prophylaxis thinking that "saves his face," and he will not be tried because he took the prophylaxis finally. We have no way of knowing whether he took it on the night that he indulged or at some subsequent time. That is one great difficulty we have to face.

Another point is this: We have found on questioning a large percentage of the men that we have not got accurate data. We found that they were careless when under the influence of liquor when they indulge in intercourse, and that it was on such occasions that they got infected. I do not pretend to be a prohibitionist, but I am here talking prohibition because it is our duty as physicians to combat disease not only from the venereal standpoint but from the standpoint of inefficiency in every way. A soldier is not a good soldier if he indulges in alcoholics. Eighty-five per cent. of the men who come to the clinics with venereal disease, new cases, have been using alcohol, enough to make them either hilarious or drunk.

Dr. Wolbarst mentioned the use of condoms. There was an article in the *Military Surgeon* last month advocating this same thing; but personally I do not believe it will work. It might help some, but it will not work with certainty in all cases, because many men will not use a condom. They will not use it when they are drunk. We expect to establish prophylactic stations in Alexandria as soon as I return—two perhaps. They will be under military control, and we hope that that is going to help some.

Dr Mowry talked about the administration of soluble salts of mercury. We only give insoluble salicylate there, because we cannot see our patients every day or even oftener than once a week. Practically all our syphilitics are on duty, and after the acute infectious stage has passed, which does not take very long, they are on duty, and we do not like to ask to have them come for treatment oftener than once a week. I have used an intravenous injection of mercury a great deal, and advocate it in certain cases. I use the benzoate more frequently than the bichlorid, however.

Dr. Price talked about the officers. I am not absolutely certain about the Army regulations in this matter, but I believe that they are the same for the officers as for the men; but they are winked at. In Camp Beauregard I have never known of an officer being tried for infractions of the rules in regard to venereal diseases. Quite a number of the officers there have come to be treated, the same as the privates do.

Dr. MacGowan said that he considered that 20 per cent. of all the men in this room were syphilitic at one time in their lives, and that 20 per cent. of men in all walks of life were. I can hardly agree with him on that. Certainly, from the number of Wassermann tests I have made I have not gotten such high figures as that, either in the Army or outside of it.

## A SUCCESSFUL VENEREAL PREVENTION CAMPAIGN

W. RAY JONES, A.B., M.D.
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SEATTLE

The West recognized venereal diseases as a public health problem and undertook venereal prophylaxis when in the spring of 1913 Seattle established the first free municipal venereal clinic. It had as its chief the genito-urinary surgeon of the City Hospital, and was located in one of the outpatient rooms of the hospital. The object was to treat all indigent venereal patients, the surgeon donating the time and the city furnishing the equipment and medicine. Both male and female patients were treated, and any necessary surgical work was done in the hospital. That clinic is still running today.

In 1917, numerous individuals and various organizations tried to devise some means of decreasing venereal diseases among soldiers and sailors visiting our cities. Little came of this because of no two having the same idea, until the Committee on Venereal Prophylaxis of the state medical association, aided by public spirited persons, established two venereal prophylaxis stations. One was in Seattle and one in Tacoma. Here men exposed to venereal diseases could secure preventive treatment free of charge.

In October, 1917, the military authorities, in conformity with the national program for the prevention of venereal diseases, called the attention of Seattle to existing vice conditions. The result was the formulation of the plan outlined in the following paragraphs:

All persons known to the health department or police as prostitutes are arrested and held for a medical examination. When the police arrest these supposed prostitutes or pimps they put a disorderly person charge against each individual, and immediately turn the person over to the health department for examination as suspected of being infected with a communicable disease. This person is now under the jurisdiction of the health department and not admitted to bail until released as not infected. If on examination he or she is found to have a venereal disease, appropriate treatment is begun.

To be classed as diseased, the person must have a positive Wassermann reaction or a positive gonorrhea slide or clinical chancroids. Clinical evidence has to be confirmed by laboratory findings and weak positive Wassermann reactions by clinical evidence, and all evidence, both laboratory and clinical, whether diseased or not, confirmed by a second person. Physicians' health certificates are ignored, as in thirty cases collected, none were given after a thorough examination. If found not diseased, the person is returned to the police, and goes through the police court in the regular way on a disorderly person charge.

In an examination of 513 prostitutes and their associates by the Seattle Health Department, the findings of which are given in the accompanying table, 78 per cent. of the prostitutes were diseased, 60 per cent. having syphilis, 37 per cent. gonorrhea, and 17 per cent. both syphilis and gonorrhea, and among men associating with or living off prostitutes, 35 per cent. had syphilis, 27.5 per cent. gonorrhea, and 8.5 per cent. both.

All the diseased are regarded as actively or potentially infective. Women with syphilitic histories dating back twenty years were found with vulval mucous patches. One congenital syphilitic had a specific pharyngitis and chancroidal infection; no syphilitic, therefore, could be regarded as not likely to become infectious at any time. The policy is to regard all infected prostitutes and panders as a menace to the public health and treat them accordingly.

During the period between November 9 and July 1, the city treated in its quarantine stations 219 women with syphilis, releasing 120 with negative Wassermann reactions, and 126 women with gonorrhea, releasing 105 as cured. During the same time forty-five men with syphilis and thirty-four with gonorrhea were treated. The average number under treatment was about 150, though at one time 235 were interned. Forty-one women and twenty-one men were broken of the drug habit during treatment.

DISEASE RATING OF FIVE HUNDRED AND THIRTEEN PROSTITUTES AND THEIR ASSOCIATES *

| | Women, Per Cent. | Men, Per Cent. |
|---|---|---|
| Syphilis | 42.6 | 20.8 |
| Gonorrhea | 17.4 | 19.0 |
| Syphilis and gonorrhea | 17.0 | 8.5 |
| Chancroids uncomplicated | 0.2 | 0.1 |
| No disease | 22.0 | 47.0 |
| Total diseased | 78.0 | 53.0 |
| Total syphilis | 60.0 | 35.0 |
| Total gonorrhea | 37.0 | 26.4 |

* Findings in an examination of 384 women and 129 men by the Seattle Health Department between October, 1917, and July, 1918.

A syphilitic to be released must have a negative Wassermann reaction as well as no clinical signs, plus sufficient treatment to make a negative reaction of value. This treatment consists usually (according to the case) of weekly arsphenamin injections plus mixed treatment to saturation. Usually it required at least three months to secure a negative reaction. Wassermann tests for release are taken a week after the mercurial treatment has beeen suspended.

A gonorrheic must have three consecutive negative slides at least forty-eight hours apart, with all treatment suspended for at least forty-eight hours before taking the first. Men are also subjected to prostatic and seminal vesical massage.

The prime object is to prevent disease by removing the sources of infection, and then keep the girls from relaxing into former habits and becoming reinfected. All with homes are sent to their parents, and homes and occupations found for the others. All within a reasonable distance are required to report in person every two weeks after release.

Since the Seattle campaign began, the other cities of the state have taken up the work. The state board of health likewise has made venereal disease reportable. The requirements for release are probably the most stringent in the country, but public health demands the interning of all prostitutes and of men living off them as potential carriers of disease.

964 Empire Building.

## DESCRIPTIVE PICTURE OF BERIBERI

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In the latter part of April, 1918, a four masted schooner arrived in New York harbor from a port in British West Africa. The cargo consisted of logs, rubber and cocoa. Of the original crew of ten men, eight of whom were from Finland, the skipper and the cook being German-Americans, eight remained, and all except the skipper were suffering from beriberi. The trip consumed eighty-five days, during which hardships of all sorts were experienced. The remaining seven of the schooner's crew, victims of the original Oriental disease, were detected at quarantine by the boarding officer and brought to the Hoffman Island State Hospital for isolation and treatment. These patients landed in a somewhat prostrated condition, and one of them died the following day of acute dilatation and hypertrophy of the right ventricle, his case being an acute pernicious dry form of beriberi. In addition to the heart, the liver and kidneys were also affected.

### CLINICAL OBSERVATIONS

Of the six patients, three were suffering from the wet or edematous form of beriberi. They complained of pain in the abdominal, epigastric, thoracic and lumbar regions, and had a general lassitude. The other three patients were suffering from the dry form of beriberi with similar symptoms. They had muscular atrophy; the calves of the legs became thin and flabby and the thigh emaciated with a sharp anterior edge of the tibia; their reflexes were somewhat altered and slow in response. One of these patients had as a complication scorbutus, and another, dermatitis exfoliativa. The patients had an evening temperature between 100 and 101 and a fraction, with an increased morning pulse rate to 105 while the temperature was normal. Now and then the stethoscope reflected an echo of a slight systolic murmur, which disappeared and reappeared until complete cure was effected. The laboratory findings were negative as to blood and feces, but urinalysis revealed albumin in small percentage in two cases and a trace of sugar in one case. Microscopically, epithelial casts of renal origin were detected. I noticed particularly some erythema on the hands and simple conjunctivitis in three patients out of the remaining six. The patients were as hungry as wolves, and food was given to them generously, their diet consisting of fresh fruits and vegetables, milk and fresh meat. They hated the sight of rice, and that Oriental dish was excluded, of course, from their bill of fare. They walked in the hall of the ward in a way that reminded the nurse of people dancing the "hesitation." They were constipated, and laxatives were frequently administered to them for relief.

In the line of drugs, cardiac stimulants, quinin and general tonics seemed favorable, and the careful and systematic administration of these brought the patients to complete recovery within thirty days of their admission into my service. The nurses in charge of the state ward took deep interest in the care of these beriberi patients, as it was their first experience in caring for the Japanese disease, and as they were preparing to join the Red Cross, there was a possibility of their being sent to tropical or semitropical countries for

duty where they might have to deal again with beriberi. The patients, in their turn, were grateful, drew pictures of the schooner with a view of West Africa, and gave these to the nurses and dietitians as souvenirs before leaving Hoffman Island, which they did in the best spirits and physique.

### CAUSATION AND INCIDENCE OF BERIBERI

Fraser and Stanton hold that the substance in unpolished rice that prevents beriberi is phosphorus pentoxid present to an extent of about 0.53 per cent., and reduced in polished rice to 0.26 per cent. Okata and Kokubo, Japanese army surgeons, reported the discovery of a diplococcus for beriberi, but inoculation experiments on monkeys have been negative. Hence the bacteriology of beriberi is still in the experimental stage. It is asserted also that feeding chickens and birds with spoiled rice has produced polyneuritis the same as in man. This will strengthen the theory of decomposed food and the pathogenic process of metabolism with the development of bacteria causing the kakke, or beriberi.

Beriberi is not limited to Oriental countries such as China, Japan, India and the Philippine Islands, but cases have been observed in Africa and in South America, especially in Brazil, and in the United States and Canada, England, Ireland and continental Europe. There are 50,000 cases yearly in Japan, and in the Philippine Islands there were 3,334 cases in 1910. The mortality in beriberi averages 33 per cent.

### CONDITIONS ON THE TRIP FROM AFRICA

Before leaving the West African coast, the crew took fresh water from that land for drinking and cooking. Also they had provisions consisting of canned goods (meat and fish) and canned vegetables. The skipper shared the same bill of fare with his crew, and in addition he had whisky, pies and puddings, which he selfishly consumed in full view of the crew. Rain water was obtained during the trip, but the skipper kept it all for his own use, forcing the crew to drink only the water taken from the West African coast.

They alternated dishes with corry, rice and salt meat. Their chief mate left Assinie in a serious physical condition and died at sea a few days later. The donkeyman died also. Both sailors died evidently of beriberi. The seven other members of the crew became ill in the middle of their journey to New York with symptoms of swollen legs, pain in the epigastrium and in the chest and sides with a general "tired feeling." None except the captain brushed the teeth. They had for treatment cathartics and quinin, but the disease was slowly developing during the trip. After the swelling disappeared, numbness in the legs, paresthesia and coldness of the limbs ensued for several days preceding death.

### CONCLUSION

I can agree with Braddon and Cooper that the continuous consumption of large quantities of carbohydrates, with their vitamin, causes beriberi, and that fresh vegetables and a mixed diet are evidently the best prophylactic measures.

**Average Mental Ability.**—Go into any court of law and hear a dozen witnesses describe the same event. You will become convinced that the average person cannot see nor hear more than one half straight, and cannot draw a conclusion from what he sees or hears more than 25 per cent. straight.—E. P. Lyon, *Texas State Journal of Medicine.*

## *Military Medicine and Surgery*

# IMPORTANCE OF BLOOD CULTURES IN PNEUMONIA

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That many cases of pneumonia have an associated septicemia has long been known. The relation between the degree of septicemia and the severity of the disease has also been studied and appreciated. In fact, the statement has been made that "in the more severe cases a true septicemia is usually present, and this always occurs in the cases ending fatally." I have had no opportunity to make any review of the literature on this subject. I desire merely to give a brief report on the experience at this base hospital in order that the results may be compared with those obtained at the other camps and to urge the advisability and importance of taking blood cultures as a routine in all cases of pneumonia among the soldiers. The information thus gained is of great value in prognosis and serves as a helpful guide to the specific therapy in the Type I cases.

TABLE 1.—FREQUENCY OF POSITIVE BLOOD CULTURES IN THE VARIOUS TYPES OF PNEUMONIA

| | No. Cases | Positive Blood Cultures | Per Cent. | Serum Treated | Empyema | Mortality | Per Cent. |
|---|---|---|---|---|---|---|---|
| Type I | 13 | 6 | 46.1 | 12 | 1 | 1 | 7.7 |
| Type II | 4 | 1 | 25.0 | 0 | 0 | 1 | 25.0 |
| Type III | 1 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| Type IV | 24 | 1 | 4.2 | 0 | 1 | 1 | 4.2 |
| Undetermined | 12 | 0 | 0.0 | 0 | 0 | 0 | 0.0 |
| Hemolytic streptococcus | 9 | 5 | 55.5 | 0 | 0 | 5 | 55.5 |
| | 63 | 13 | 20.6 | 12 | 11 | 8 | 12.7 |

During the months of May, June and July, blood cultures were taken as a routine in all cases diagnosed clinically as lobar pneumonia and in a few cases diagnosed as bronchopneumonia. These cultures were made in practically all instances within twenty-four hours after the patient was admitted to the pneumonia ward. If the admission culture proved negative and the condition of the patient continued satisfactory, the cultures were not repeated. On the other hand, if the admission culture was positive or the patient's condition continued to grow worse, the cultures were repeated as often as considered necessary. The greatest number taken in any one case was five.

In all cases the cultures were made by withdrawing from 15 to 20 c.c. of blood into a sterile Lüer-type syringe; from 10 to 15 c.c. were added to a flask containing from 100 to 150 c.c. of plain meat infusion broth; the remaining 5 c.c. were divided into 2 and 3 c.c. portions, each thoroughly mixed with 10 c.c. of plain melted agar, and plates were poured in the usual manner. All cultures were kept in the incubator for at least four or five days before being discarded as negative. In all positive cultures the organism was identified by staining and cultural characteristics, by tests for bile solubility, and if bile-soluble, the type of pneumococcus was determined by the reactions with immune serums.

Ninety-three cultures were taken on sixty-three different patients, and of these, eighteen, or 19.3 per cent., were positive. Thirteen of the sixty-three patients, or 20.6 per cent., had one or more positive cultures during the course of the disease. The frequency with which positive cultures were obtained in the various types of pneumococcus pneumonia, in hemolytic streptococcus pneumonia and in those in which the etiologic factor remained undetermined, is shown in Table 1. The increased tendency of the more virulent organisms (hemolytic streptococcus and pneumococcus Types I and II) to invade the blood stream is clearly apparent. Attention is also directed to the high mortality among these patients, with the exception of the Type I patients, who enjoyed the advantage of specific serum therapy. All the patients with hemolytic streptococcus infection developed empyema.

A list of the Type I pneumococcus cases is given in Table 2. These cases, as a rule, require much larger amounts of serum than those with negative cultures, and it is important that the serum treatment should be instituted early and pushed vigorously, especially during the first few days. The treatments should be repeated every six or eight hours, day and night, as long as the rectal temperature is 101 or higher. The very heavy infection, approximately 100 colonies per cubic centimeter, and died ten hours after the blood culture was obtained.

TABLE 2.—RAPID DISAPPEARANCE OF THE SEPTICEMIA IN TYPE I CASES THAT ARE SERUM TREATED

| Name | Day of Disease | Blood Cultures Colonies per C.c. | Amount Type I Serum Used, C.c. | Empyema | Result |
|---|---|---|---|---|---|
| C. C. | 2 | 7 | 800 | No | Recovery |
| | 3 | 0 | | | |
| L. H. | 6 | 11 | | | |
| | 10 | 0 | | | |
| | 21 | 0 | 1,100 | No | Recovery |
| J. D. | 6 | 1 | None | Yes | Recovery |
| F. N. | 2 | 15 | | | |
| | 4 | 0 | 800 | No | Recovery |
| K. L. | 2 | 1 | | | |
| | 4 | 0 | 800 | No | Recovery |
| C. M. | 4 | 44 | | | |
| | 5 | 0 | | | |
| | 6 | 0 | | | |
| | 11 | 0 | 1,500 | No | Died |

We had only one Type III case during this time. The blood culture on admission was negative, and the disease ran a very mild course.

Of the twenty-four IV cases, a positive blood culture was obtained in only one. Clinically this patient showed consolidation of the entire left lung. He was admitted to the pneumonia ward on the sixth day of the disease, and a blood culture was made the same day. It showed thirty-one colonies per cubic centimeter. A second culture was made two days later, July 12, and showed a slight increase to thirty-four colonies per cubic centimeter. July 13, a third culture was made and showed a reduction to eleven colonies per cubic centimeter; July 14, there were only four colonies per cubic centimeter, and, July 15, the septicemia had entirely disappeared. The clinical course paralleled the septicemia, but even during the height of the disease

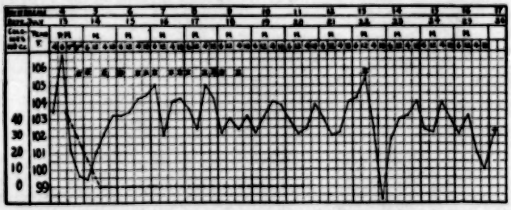

Chart 1.—Temperature and septicemia curves in a fatal case of Type I pneumonia. Note the critical fall in the septicemia curve after the first two injections of specific serum. Solid line, temperature; broken line, septicemia; *, injection of 100 c.c. of serum; †, death of patient.

rapid subsidence of the septicemia after one or two injections of serum is very striking. Even in the case of C. M., who died on the seventeenth day of the disease, the septicemia disappeared entirely after the second injection. The temperature, however, remained high, and he developed a double otitis media and finally died. The pneumonic process remained confined to the original involvement, namely, the left lower lobe, and the presence of empyema could never be demonstrated either by roentgen ray or needle, though the patient was explored repeatedly. A necropsy was not allowed. Death seemed to be due to the toxemia, which the serum, though administered generously (1,500 c.c.), did not seem to alleviate. It does seem, however, in this case, that the serum prolonged life. The temperature and septicemia curves of this case are shown in Chart 1. This case is very similar to one described by Cole,[1] in which a "persistent concentration of immune bodies could not be maintained in the patient's blood by the administration of immune serum." Of the six Type I cases with positive blood cultures, only one was fatal.

In Type II cases a septicemia is always of grave import. In the four cases listed in Table 2 septicemia was demonstrated in only one. This patient had a

TABLE 3.—HIGH MORTALITY IN HEMOLYTIC STREPTOCOCCUS SEPTICEMIA

| Name | Day of Disease | Blood Cultures Colonies per C.c. | Empyema | Result | Remarks |
|---|---|---|---|---|---|
| A. M. | 4 | 0 | | | |
| | 14 | 0 | | | |
| | 22 | 0 | | | |
| | 29 | 0 | | | Bl. Cult. positive in broth |
| | 30 | 1 | Yes | Died | Bl. Cult. positive in broth |
| F. S. | 10 | 0 | | | |
| | 15 | 0 | | | |
| | 16 | .. | Yes | Died | Postmortem blood culture positive in broth |
| T. S. | 7 | 7 | Yes | Died | |
| C. S. | 7 | 50 | Yes | Died | Death occurred 10 hours after blood culture was taken |
| A. Y. | 2 | 0 | | | |
| | 3 | 0 | .... | .... | 1 hour before operation |
| | 4 | 0 | .... | .... | 16 hours after operation blood culture in broth positive |
| | 8 | 0 | Yes | Recovered | Blood culture in broth negative |

the patient appeared quite comfortable, and at no time was his condition considered critical. As soon as the blood became sterile, the patient entered on a rapid and uninterrupted convalescence. This case

1. Cole, Rufus: Jour. Exper. Med., 1917, **26**, 465.

demonstrates that a patient may have a relatively severe septicemia with an organism of low virulence and still not be very sick. The proof that we were dealing with a Type IV pneumococcus was established by injecting several cubic centimeters of one of the blood cultures in broth intraperitoneally into a white rat. The rat died in less than sixteen hours, and at necropsy showed a severe peritonitis, the exudate containing large numbers of gram-positive encapsulated diplococci which were bile soluble but did not react specifically with Type I, II or III serum. A second rat was injected intraperitoneally with 2 c.c. of sputum emulsion from the same patient. This rat also died over night. At necropsy an identical organism was recovered from both peritoneal exudate and heart's blood. The temperature and blood culture curves in this case are shown in Chart 2.

There were twelve cases in which the etiologic factor was undetermined. None of these patients had a positive blood culture, and all recovered.

A list of the hemolytic streptococcus cases with positive blood cultures is given in Table 3. There were five of these cases; all were complicated by empyema, and four of the patients died. This shows the gravity of septicemia in these cases. A. Y., who recovered, had a negative culture one hour before his operation for empyema. Another culture taken the following morning was negative in the plates but positive in the broth. Cultures were repeated twenty-four hours later and were entirely negative. This case illustrates that a patient may have a slight hemolytic streptococcus septicemia and still recover. The supposition that a relatively small number of organisms gained access to the blood stream through the operative wounds seems reasonable. The patient apparently developed a rapid immunity and overcame the septicemia before it gained much headway.

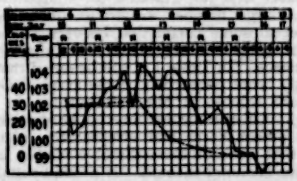


Chart 2.—Temperature and septicemia curves in a case of Type IV pneumonia in which the patient recovered. Note the initial rise followed by the gradual fall in the septicemia curve, and the parallelism of the curves.

In direct contrast to the foregoing case is that of M. A. This patient had a negative blood culture antemortem, and a second blood culture taken eight hours postmortem was negative both in the broth and in the plates. The necropsy disclosed a very extensive bronchopneumonia involving most of the right lung and part of the lower left lobe. In addition there was an empyema on the right side which had been diagnosed antemortem. This patient evidently died from a severe toxemia rather than from a septicemia. All the other hemolytic streptococcus patients with negative blood cultures recovered.

### SUMMARY AND CONCLUSIONS

1. Blood cultures in pneumonia are valuable from the standpoint of prognosis and as a guide in the serum therapy of the Type I cases.

2. Septicemia is more common with the more virulent strains of pneumococcus and with *Streptococcus hemolyticus*.

3. Type I pneumococcus septicemia responds very promptly to immune serum treatment.

4. A moderately severe Type IV pneumococcus septicemia may be quickly recovered from.

5. The mortality in hemolytic streptococcus septicemia is very high, but one case is reported in which the patient had a slight transient septicemia and recovered.

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## SELECTIVE ACTION OF DILUTE SODIUM HYDROXID ON CERTAIN RACES OF THE PNEUMOCOCCUS*

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It was demonstrated by Neufeld in 1900 that pneumococci, in contrast to many species of bacteria, are readily soluble in bile. Neufeld[1] stated, on incomplete evidence, that the bile salt is the constituent of bile which is responsible for the lytic action on the pneumococcus. This statement found ready acceptance, very possibly because of the well-known action of bile salts in dissolving red corpuscles.[2] However, in the routine tests for the differentiation of pneumococci and streptococci, a solution of bile salts dissolves the pneumococcus so feebly and so irregularly that whole bile is used in preference to the purified salts. The concentration of bile salts in bile varies widely, but as a rule it is less than 1 per cent.; a 10 per cent. solution of bile salt, however, is recommended if these salts are substituted for bile in the solubility tests.[3] One part of this 10 per cent. solution is added to nine parts of a broth culture of the organisms to be tested. Rosenow[4] mentions the solution of pneumococci in 0.5 per cent. bile salt. Such behavior is exceptional; with a 2 per cent. solution of sodium cholate, Cole[5] found that many typical strains dissolved incompletely or not at all.

It seems probable that other constituents of bile play an important rôle in the solution of the pneumococci. The pigments merit consideration because of their cytolytic action in the presence of light (photodynamic action). Some bactericidal but no appreciable bacteriolytic action could be demonstrated with pneumococci under the following conditions:

One per cent. of bilirubin was dissolved in salt solution with the aid of a little alkali. One part of this was mixed with nine parts of a suspension of pneumococci in salt solution. Strains belonging both to Group 1 and Group 2 were tested. The mixture was exposed in thin walled test tubes of ordinary glass, 1 cm. in diameter, to direct sunlight for five hours. The bile pigment became much lighter in color but this mixture remained turbid and stained preparations showed numerous pneumococci. Therefore it does not seem

* The observations reported in this paper were carried out at the Base Hospital, Camp Dodge, Iowa, and at the Pathological Laboratory of the Johns Hopkins Medical School, Baltimore.

1. Neufeld: Ztschr. f. Hyg., 1900, 34, 454.

2. The term "bile salt" ordinarily indicates the salt of cholic acid conjugated either with glycocholate or taurocholate. Since the cholate radical is the active portion of the molecule, sodium cholate is sometimes employed instead of the conjugated products.

3. Hiss and Zinsser: A Textbook of Bacteriology, Ed. 3, New York, D. Appleton & Co., 1916, p. 370. Avery, Chickering, Cole, and Dochez: Monographs of the Rockefeller Institute, 1917, No. 7, p. 13.

4. Rosenow: Jour. Infect. Dis., 1910, 25, 124.

5. Cole: Jour. Exper. Med., 1912, 16, 644.

that the bile pigments alone could play any important part in the solution of pneumococci by bile under ordinary routine conditions.

The alkaline reaction of bile deserves attention since neither the pigments nor the bile salts can remain in solution in a distinctly acid medium. A specimen of calf's bile after autoclaving and filtration was titrated roughly against litmus paper; its alkali content corresponded roughly to a hundredth normal solution. The importance of avoiding an acid reaction in carrying out the bile solubility test was noted by Cole,[5] who advises a slightly alkaline medium composed of primary and secondary phosphates. On using a stronger alkali, however, it will be seen from the following data that certain strains of pneumococci dissolve rather readily in dilute sodium hydroxid alone without the aid of bile. For example, one strain (Group 2) dissolved readily in twenty-fifth normal hydroxid. Another culture of the same strain after incubation for twenty-four hours at 37 C. was allowed to stand for one week at room temperature. The washed sediment of bacteria then dissolved in remarkably high dilutions of sodium hydroxid. One part of a very cloudy suspension of the washed bacteria cleared immediately when mixed with an equal part of a five hundredth normal solution. Almost complete solution took place with thousandth normal sodium hydroxid, a dilution that failed to react with litmus paper. This high degree of solubility was not found frequently, however, and it occurred only in the older cultures. Fresh cultures of several strains were tested for their solubility (1) in bile, (2) in sodium taurocholate and (3) in sodium hydroxid.

TABLE 1.—SOLUBILITY OF SUSPENSIONS OF PNEUMOCOCCI *

| Strain | Whole Bile | Bile Salt 2% | Sodium Hydroxid | |
|---|---|---|---|---|
| | | | N/5 | Effect of Higher Dilutions |
| **Group I** | | | | |
| 1 | C | C | C | N/50 C |
| 2 | C | 0 | AC | |
| 3 | C | AC | C | N/25 C |
| 4 | C | 0 | C | N/100 C |
| **Group II—typical** | | | | |
| 5 | C | 0 | C | N/100 C |
| **Group II—atypical forms** | | | | |
| 6 | C | C | 0 | |
| 7 | C | C | 0 | |
| 8 | C | C | 0 | |
| 9 | C | C | 0 | |
| 10 | C | C | AC | |
| 11 | C | C | AC | |
| 12 | C | 0 | C | N/50 AC |
| 13 | C | 0 | P | |
| 14 | C | C | C | N/50 C |
| 15 | C | C | 0 | |
| 16 | C | C | C | N/100 C |
| 17 | C | AC | C | N/50 P |
| **Group III** | | | | |
| 18. A | C | 0 | C | N/10 AC |
| **Group IV** | | | | |
| 19 | C | 0 | AC | N/25 AC |
| 20 | C | AC | 0 | |
| 21 | C | AC | C | N/100 C |
| **Borderline group between pneumococci and streptococci** | | | | |
| 22 | P | 0 | P | |
| 23 | 0 | 0 | 0 | |
| 24 | AC | 0 | 0 | |
| 25 | AC | 0 | 0 | |
| 26 | AC | 0 | 0 | |
| 27 | AC | 0 | 0 | |

* C, complete solution; AC, almost complete solution; P, partial solution; 0, no solution.

In order to secure a good suspension of pneumococci, inoculations were made from blood agar slants to glucose meat infusion broth. After eighteen hours' growth the broth cultures were centrifugalized, the sediment washed once with physiological sodium chlorid solution, and then suspended in saline. This suspension was neutral to litmus.

Bile of young calves was autoclaved. Before use the clear supernatant fluid was filtered off from the resulting precipitate. Sodium taurocholate was used in 2 per cent. solution in physiological sodium chlorid solution. This solution was slightly turbid and distinctly acid, but it cleared promptly on neutralization to litmus with sodium hydroxid. For the tests with sodium hydroxid, a fifth normal solution was used, and strains readily soluble in this were tested in more dilute solution. One part of the suspension of pneumococci was mixed with one part of each of the preceding solutions, giving, therefore, in the final preparations, a concentration of 1 per cent. sodium taurocholate and tenth normal sodium hydroxid. Solution often occurred immediately, though to secure constant results the mixtures were incubated for one hour at 37 C. before the final readings were taken. The results[6] are given in Table 1.

From the data in Table 1 it is seen that bile is a much better solvent for pneumococci than either sodium hydroxid (fifth normal) or sodium taurocholate (2 per cent.). In the cultivation of the pneumococci it has long been recognized that the development of acid in the medium inhibits growth; it was not evident, however, that some races are also very susceptible to alkali. The solubility in sodium hydroxid varies considerably even in the same immunologic group. It is unfortunate that a larger number of typical races were not available for study. The testing of a large number of strains of pneumococci might reveal some correlation between solubility in alkali and other characteristics, such as pathogenesis and virulence. In Table 1 it will be noted that a conspicuously large proportion of the atypical Group II strains are soluble in bile salt but not in sodium hydroxid. Of the strains in the borderline group between pneumococci and streptococci, it is noteworthy that none of these dissolve readily in either bile salt or sodium hydroxid. It would be impossible, however, to attempt any generalizations from a small number of strains.

In contrast to this ready solubility of some of the strains of pneumococci, it was found that ten strains of hemolytic streptococci isolated at Camp Dodge, Iowa, showed no evidence of any solubility with fifth normal sodium hydroxid.

TABLE 2.—EFFECT OF AGE OF CULTURE ON SOLUBILITY OF PNEUMOCOCCI *

| Culture | Strength of Sodium Hydroxid | | | |
|---|---|---|---|---|
| | N/5 | N/10 | N/50 | N/100 |
| Strain 1, 18 hours' growth | C | C | C | P |
| Strain 1, 12 days' growth | C | C | C | AC |
| Strain 18, 18 hours' growth | C | AC | 0 | 0 |
| Strain 18, 12 days' growth | C | C | C | AC |
| Strain 23, 18 hours' growth | 0 | 0 | 0 | 0 |
| Strain 23, 12 days' growth | 0 | 0 | 0 | 0 |
| Strain 24, 18 hours' growth | 0 | 0 | | |
| Strain 24, 12 days' growth | C | C | C | C |

* C, complete solution; AC, almost complete solution; P, partial solution; 0, no solution.

Some evidence was obtained in regard to the effect of the age of cultures on solubility of pneumococci in alkali. Four of the strains recorded in Table 1 were grown in glucose broth for twelve days and then tested according to the preceding technic. The results are given in Table 2.

6. These strains were collected and studied by Dr. Mildred Clough. I am much indebted to her for the use of this material and for her kind cooperation.

In Table 2 it is seen that, in the case of Strains 18 and 24, the older cultures were markedly more soluble than fresh ones. Strain 23 is of especial interest since neither the old nor the young cultures were soluble. Dr. Clough considers that this strain should probably be classed with the streptococci rather than with the pneumococci.

From the preceding data it is evident that, in testing the solution of pneumococci in bile, certain factors must be controlled in order to secure constant results; special attention should be given to the age of the culture and to the reaction of the medium.

Neufeld considers that the bile salts act specifically on pneumococci and thus resemble the immune bodies, in contrast to the chemical disinfectants, which act more or less alike on all bacteria. The solubility of certain strains of pneumococci in sodium hydroxid furnishes an example of a relatively high degree of specificity in a simple chemical substance.

In conclusion, it should be noted that the solvent action of bile on pneumococci is not easily explained. Moreover, the process may vary with the individual strains of pneumococci; this is indicated by the rather wide variation that different strains show in their solubility in bile salts and in alkali. The various constituents of bile, when isolated and tested separately, are less effective than the whole bile. An analogous situation exists in the effect of bile on certain ferments. A thorough explanation of the action of bile on pneumococci would be of service in any attempt at the therapeutic application of bile products in pneumococcal infections.

SUMMARY

The effect of bile salts does not adequately explain the solvent action of whole bile on pneumococci; in searching for other active constituents, no evidence was obtained of bacteriolytic action by bile pigments on pneumococci. Alkali in dilute solution (hundredth normal) was found to dissolve certain strains of typical pneumococci. A sufficient number of strains have not yet been tested for determining the exact relationship between solubility in dilute alkali and other characteristics of the pneumococcus, such as virulence and the immunologic groupings. Ten strains of hemolytic streptococci were tested and none were soluble in sodium hydroxid (fifth normal). In testing the solubility of pneumococci in bile, the age of the culture and the reaction of the medium are important factors. The explanation of this solvent action is by no means complete. It is quite possible that the process varies with the different strains of pneumococci; more complete data would be of value in any attempt at the therapeutic utilization of bile products in pneumococcal infections.

**Utilising Birth Records.**—In the year 1916 over 172,000 searches were made of the records of births, deaths and marriages on file in the department of health in the city of New York, almost 100,000 being free searches of birth records for admission into school, obtainment of employment certificates and for granting of money to widowed mothers. Almost 20,000 paid searches were made of the records of births for various purposes. The uses to which the transcripts of the records of births were put were many, such as to obtain passports, to prove kinship in litigation of wills, etc., to obtain a license to marry in those cases in which the city clerk refuses to grant marriage licenses unless age is proved, to establish exact date of birth for use in criminal court, to obtain deposits in savings banks, etc.—W. H. Guylloy, M.D., Registrar.

## CONVOYS AND THEIR CARE

### THE ADMITTING SECTION OF AN EVACUATION HOSPITAL DURING COMBAT

GEORGE DE TARNOWSKY, M.D. (CHICAGO)
Major, M. C., U. S. Army
A. E. F., FRANCE

While the admission of patients is normally included among the duties of the officer of the day, in actual warfare it has been found necessary to appoint a special admitting officer for this extremely important and difficult task. The term "difficult" must be qualified, in order to make its meaning clear. If, by admission, we merely understand the "taking up" of the wounded by means of their field medical cards, the filling out of data on their clinical records — Form 55 A — and assigning them by rotation to their respective wards, it stands to reason that a squad of orderlies whose handwriting is legible, under charge of a junior officer, will meet such demands satisfactorily. If, on the contrary, and as should be the case, the admitting officer must, in addition to supervision of paper work, personally act as sorting officer (*triage* of the French), then his duties immediately assume great importance. Not only should he be a surgeon of quick and mature judgment, but he must also constantly have in mind, or on paper: (*a*) the relative technical value of the different surgical teams in the hospital; (*b*) the special surgical teams on duty (thoracic, neurosurgical, etc.); (*c*) the hours of the different surgical shifts, and (*d*) the available beds in each surgical service.

#### PERSONNEL AND DUTIES OF THE ADMITTING SQUAD

One sergeant and from four to six privates of the Hospital Corps, selected for their clerical qualifications, will suffice for ordinary convoys; this number may have to be doubled or trebled if the casualties are pouring in by the hundred. Rapidity and accuracy are both essential; ambulances must be promptly discharged and blankets, pillows and stretchers returned in order not to hinder transportation problems. A varying number of stretcher bearers must also be assigned for duty during the emergency, as well as a squad of orderlies to wrap up and make out receipts for clothing.

The hospital organization must be made elastic enough to meet all contingencies, rigidity must give way to flexibility, if one does not wish to see the evacuation hospital grounds littered up with a tangled mass of ambulances, stretchers and walking wounded—precious hours wasted because sudden shiftings of duties and details have not been foreseen and worked out.

Each admitting clerk should possess a quick, legible handwriting, together with a general knowledge of wound nomenclature and accepted abbreviations.

The patients classed as walking cases line up in front of the clerks' table, give up their field medical cards, receive a ward ticket and pass on rapidly to the buffet.

Stretchers are laid in rows in the admitting tent and the clerks pass rapidly from one to the other, recording all necessary data in duplicate, for all urgent cases. As fast as the duplicate clinical record is filled out, with the ward number recorded on it, the stretcher

bearers carry each patient to the receiving ward, returning litter, pillow and blankets to the ambulance waiting outside.

The admitting officer, from an examination of the general appearance of a given patient, the pulse rate and written indications on the field medical card, decides as to his disposal. When in doubt, he should wait until the patient is in bed in the receiving ward, in order to make a thorough examination before coming to any conclusion.

In order to have at all times an accurate list of available beds, a register book is kept by the admitting sergeant. Based on the ward roster, taken after an evacuation has occurred, if any, a daily sheet is made out on which are recorded: (*a*) ward number, and (*b*) vacant beds in each ward, each vacancy being indicated by a vertical line opposite the ward number, for example: Aug. 20, W. 1., 9 | | | | | | | | |

Whenever a patient is assigned to a ward, one of the vertical lines is crossed, so that the clerk—subject to orders—maintains an equable balance among the different services. At the bottom of the daily sheet are recorded the total number of vacant beds in the hospital, total number of patients in the hospital, and total number of admissions since the opening of the hospital.

A weekly list of convoys is also made up, with the total number received each day from 7 a. m. to 7 p. m. and from 7 p. m. to 7 a. m. At the end of each month, the total number of admissions during that period is also recorded. The details of this system were all worked out by Capt. J. D. Bruce, M. C., admitting officer and director of surgical material at the American Red Cross Military Hospital No. 5; the entire system has been so generally successful and has proved to be such an invaluable time saver that it has seemed worth while to describe all of its minutiae. The great problem in an evacuation hospital is to operate properly and rapidly on a large number of patients in a short space of time—the shorter, the better for each patient. I am sure that every surgeon will agree with me that much time is needlessly wasted in the operating room, waiting for patients. If one represents as 100 the total expenditure of time in a given surgical case—from the time the patient arrives in the ward until he returns thereto from the operating room—this number can ordinarily be thus subdivided:

| | |
|---|---|
| Undressing and cleansing of patient | 30 |
| Preparation of operative field in ward | 10 |
| Waiting for turn in roentgen-ray room and fluoroscopy | 10 |
| Anesthetizing patient and placing him on table | 10 |
| Operation | 20 |
| Dressing, bandaging, immobilization and removal of patient from operating room | 20 |
| Total | 100 |

A properly organized admitting tent and competent director of surgical material will easily quadruple the operative output of a surgical team—an all important item during a heavy battle.

### SORTING (TRIAGE) OF THE WOUNDED

The rough-and-ready division of wounded from the regimental aid post or field hospital into walking and stretcher cases has only a relative bearing on the severity of the wounds or the urgency of their radical treatment. Many patients classed as "walking" cases have collapsed from internal hemorrhage or gas gangrene on admission or shortly afterward; many classed as "stretcher" cases have turned out to have only a superficial flesh wound or extra-articular contusion. This is not intended as a criticism of the dressing station or field hospital; to make more than a snap shot diagnosis, when a steady stream of wounded men is pouring into a dugout or tent, is out of the question. The first complete diagnosis must be made in the evacuation hospital, and on the admitting officer falls this heavy burden. With a sudden convoy of three or four hundred casualties arriving within a few hours, and from five to ten surgical teams in the operating rooms, it stands to reason that some of the wounded will have to wait several hours before their turn comes. The admitting officer must decide on the order of precedence. When a big battle is on there can never be enough surgical teams in an evacuation hospital to operate on all patients within twelve hours after admission. Fortunately for our wounded, the percentage requiring immediate limb or life-saving intervention is relatively small—probably not more than 20 per cent. These are the wounded that must reach the operating room immediately, regardless of the order of

Fig. 1.—American Red Cross Military Hospital No. 5: panorama of hospital tents, all belonging to the same unit.

their admission or of the surgical service to which they are assigned.

Theoretically, and during relatively calm periods, each surgical team should examine its patients before they are admitted to the operating room; practically, this is not possible during an active "show." Each team is operating, dressing patients and snatching a few hours out of the twenty-four for meals and sleep. On the admitting officer must devolve a diagnosis of the relative urgency of each case, its confirmation by the fluoroscope (localization of foreign bodies, fractures) and the surgical preparation of the wound area by the ward orderlies and nurses. When in doubt as to the severity of a given case, etc., he can and should call in the aid of the consulting surgeon or chief of surgical services. While convoy follows convoy, and the operating teams are straining every ounce of strength in order to meet the demands placed on them, all surgical cases must be pooled, the only exception to this rule being those wounds demanding special technic in their treatment; the latter alone should be reserved for operation by teams previously trained and selected for that purpose. Such teams must be ready at all hours to operate when called on to do so.

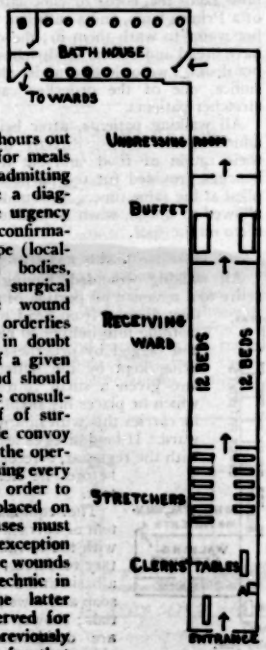



Fig. 2.—General plan of admitting section: *A*, table at which money, etc., may be deposited; *B*, clothing, pajamas, etc.

### ADMITTING OFFICER AND DIRECTOR OF SURGICAL MATERIAL

Having supervised the admission of a convoy, and divided the cases into medical, slightly wounded and severely wounded, the admitting officer should devote his attention to the latter cases.

From the admitting tent all severely wounded pass directly into the receiving ward, where they are placed on specially prepared beds, undressed, deloused and washed by orderlies and nurses. In order to avoid contamination by lice, etc., the bed is first made up in the ordinary manner, and a sheet placed over the blanket. The patient is laid on the sheet covered by an extra blanket or two, undressed and cleansed without exposure of more of his body than is absolutely necessary. When he is ready for his pajamas, the extra top sheet and blankets are rolled away from under him and he is slipped under the regular coverings. The extra top sheet and blankets are taken to the delousing station and sterilized. Light diet is furnished from the buffet and given to all patients excepting those presenting intra-abdominal lesions or suffering from concussion or coma.

In shock cases, if very severe, the patients are not undressed at all, but heat is applied around their bodies, hot drinks are given them or they are transfused, either in the same ward or in a special room containing separate heat chambers (*cellules chauffantes*).

Having sorted the severely wounded into urgent surgical, observation and borderline cases, the admitting officer directs the former, in proper order, to the roentgen-ray room, where they are fluoroscoped, all fractures recorded and foreign bodies localized. All severe observation and borderline cases are assigned and transferred to the different surgical wards, special or general, where they are examined a second time by the chief of the surgical team and booked for operation during that team's shift. Should an operative emergency develop among these cases, the patient is immediately ordered to the operating room and operated on by one of the teams on shift at the time.

In order that all available data may reach the operating surgeon before or while the patient is being anesthetized, a duplicate clinical record of all severe cases is made out in the admitting tent. One copy goes to the registrar's office, in order not to delay the daily sick and wounded report, and the other, with the field card and roentgen findings, accompanies the patient to the operating room. The clinical records and field cards of the slightly wounded and medical cases are not made out in duplicate, both documents going from the admitting tent to the registrar's office, whence they are returned to the proper wards. Should another convoy arrive, as sometimes happens, before the first lot of wounded have been disposed of, the admitting officer has an assistant who replaces him in the admitting tent.

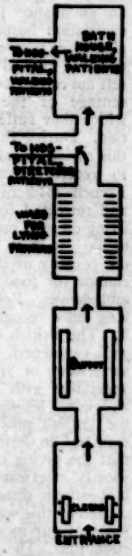



Fig. 3.—Another plan of an admitting section of an evacuation hospital.

As soon as the disposal of the convoy has been determined, the admitting officer—now become director of surgical material—takes position near the operating barrack or tent, in order to keep in constant touch with the stretcher bearers, roentgen-ray and anesthetizing rooms, thus insuring a constant stream of wounded toward the operating rooms and preventing undue congestion at any point. Each squad of stretcher bearers is given its share of the list of operable cases, with their order of precedence; as each wounded man enters the operating barrack, the director verifies the name, diagnosis, etc., and checks them off his list. On completion of an operation, the name and ward number are checked off. As far as possible, a patient who has been operated on should be placed in the service of the operating team; practically this is not always possible while the pooling of cases is in force. Since, however, the operating sheet accompanies the patient, with the name of the surgeon written on it, it is a simple matter to follow the case up and make the proper transfer as soon as the intensity of the battle has abated.

In order to assure a better postoperative treatment of critical cases, a recovery ward is necessary; in it all of the surgical teams can follow their cases from day to day. A ward surgeon does all of the dressings in the recovery ward, subject to the orders or suggestions of the operating surgeon, who is required to be present during ward walk, in order not to disturb routine work.

### SURGICAL DISPENSARY FOR WALKING WOUNDED

During a big "show," valuable saving of time is obtained by appointing a junior officer as dresser for all walking wounded. A section of tent is set aside for this purpose and equipped with sterilizer, instruments and dressings. The dispensary dresser is furnished with a daily list of walking wounded; the latter are sent for, ward by ward, an orderly being detailed for that purpose.

### THE ADMITTING TENT BUFFET

Curiously enough, almost the first point to impress on a raw M. C. recruit—surgeon, nurse or orderly—is the all important fact that a wounded soldier is a disabled athlete and not a sick man. With few exceptions this is axiomatic. Casualties arrive at the evacuation hospital after having received a cursory dressing and immobilization, if necessary, in a regimental aid station or field hospital; they may have been fighting for hours or days with little or no time for regular meals; and a tiring meal-less trip of several hours in an ambulance precedes their arrival at the evacuation hospital, the first stopping place where they can get food, rest and radical treatment. I myself am convinced that a goodly percentage of the exhaustion from which they suffer is due to starvation. During the critical battles of this spring, it was no unusual event to receive wounded British and French soldiers who had fought and retreated for five or six days, living on stale bread or hard tack which they happened to have in their knapsacks or pockets. Regardless of the severity of their wounds, nine out of ten soldiers clamor for food before they are discharged from the ambulances. Both the French and British armies have long since recognized this condition and provided for it. The British buffet is always supplied with hot tea, well sweetened, bread, butter and jam. The French serve soup or "rata"—a composite stew of meat and vegetables with Pinard (wine). Soldiers with intra-abdominal lesions should, of course, be excluded from the buffet; practically they are the very ones who manifest no desire for food. While admitting the fact that the giving of nourishment to a patient who may shortly afterward require anesthetizing presents certain esthetic disadvantages, I have yet to see any harm caused by this war custom. Military surgery has given some of our most deeply ingrained surgical notions a rude jolt. The giving of food and omission of the sacramental preoperative purge are two of the least important. When one has seen hundreds of wounded men eating their fill at the buffet and then, deloused, washed up and clothed in clean pajamas, fall into their beds and into profound slumber, from which they awaken a few hours later strengthened and refreshed for their operative ordeal, there can be no further doubt as to the best procedure to follow. Food they must have, prewar notions to the contrary notwithstanding.

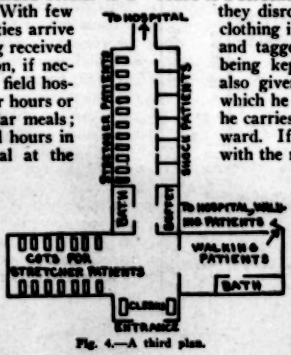


Fig. 4.—A third plan.

The buffet should consist of a section of tent or barrack with tables on each side of its long axis. One table holds tea, cocoa or chocolate, kept hot by means of a Primus lamp, and a sufficient quantity of cups and hot water to wash them in; the opposite table should have bread and butter, sandwiches, hash or some other hot dish. Two orderlies, under charge of a nurse, will suffice, one of the orderlies carrying trays to the stretcher patients.

All walking patients, after being taken up by the admitting clerk, pass directly to the buffet, receive their ration of food, and eat it sitting on rows of benches provided for the purpose. Cigarets are supplied at the same time. A wounded soldier who is not allowed to smoke, when so inclined, becomes an insurrecto on the spot.

### THE DELOUSING AND BATHING BARRACK OR TENT

All walking wounded, having eaten and smoked, retire to a screened off portion of the buffet tent where they disrobe from head to foot and roll their clothing into individual bundles which are tied and tagged by orderlies, a duplicate number being kept by the patient. Each soldier is also given a small cotton "treasure" bag in which he places his small personal belongings; he carries this with him to the bath house and ward. If he desires to leave money or jewelry with the registrar, a receipt for it is given him before he leaves the admitting tent.

The equipment of the bathing tent or barrack will necessarily vary with the terrain and available sanitary resources. A pitcher of water, a basin and a cup of kerosene, with soap and towel, represent the essentials; shower baths with hot water are desiderata whenever obtainable.

Each man scrubs the hairy parts of his body thoroughly with the kerosene oil, and then uses soap and water. When dried, a suit of pajamas, pair of socks and slippers are donned and he is directed to his ward.

### DIMENSIONS AND PLANS OF ADMITTING SECTIONS

For a 2,000 bed evacuation hospital, five tents or barracks, approximately 6 by 18 yards, will be required. Of these, one is used for admission, one for a buffet and undressing room, two for stretcher cases and one for a bathing room.

By the method of having all the wounded reach their respective wards or operating barrack deloused, cleansed and clothed in pajamas, an immense amount of time is saved and the routine work of orderlies and nurses is not hampered. Though not strictly necessary, a junior officer can be detailed to change all old or foul-smelling dressings in the admitting ward; walking patients should be dressed in the surgical dispensary.

The general plan of the admitting section will necessarily vary with the terrain and available resources of the evacuation hospital. The three herewith submitted have all been successfully used in British, French or American evacuation hospitals.

### CONCLUSIONS

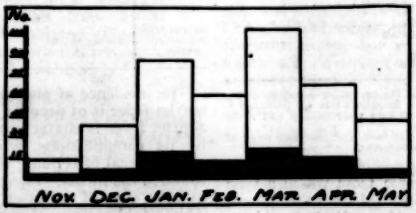
1. The general plan of admission is the result of observations made along the Franco-British front in 1917-1918; the details, as carried out in our hospital, and many original ideas embodied therein, should be credited entirely to Capt. J. D. Bruce, M. C.

2. If carried out, with omissions or additions suggested by divergent conditions of the battle front, the scheme will be found to be both time and life saving.

## PNEUMONIA AT CAMP MEADE, MARYLAND

HENRY M. THOMAS, M.D. (BALTIMORE)
First Lieutenant, M. C., U. S. Army; Supervisor of Pneumonia Wards, Base Hospital
CAMP MEADE, ADMIRAL, MD.

From the opening of the base hospital, Nov. 1, 1917, to May 31, 1918, 421 cases of pneumonia have been diagnosed in the wards. Of these, 361 were diagnosed as lobar pneumonia and sixty as bronchopneumonia. We are doubtful as to the accuracy of this differential diagnosis, and in some cases such a differentiation was impossible. Cases with sudden onset, usually with a chill, rusty sputum, continuous high fever, and defervescence by crises between the fourth and tenth day were called lobar pneumonia without consideration of the distribution of pulmonary signs. In a few borderline cases the roentgen ray was of considerable help. There were undoubtedly a number of cases of bronchopneumonia or interstitial bronchopneumonia diagnosed as lobar pneumonia, and we were unable to correct this diagnosis except when the cases terminated fatally. The bacteriology was no help in making the diagnosis, for in two cases of bronchopneumonia and five cases of bronchitis, the Type II pneumococcus was isolated from the sputum. Of the sixty cases diagnosed as bronchopneumonia, only twelve followed measles (the other six measles pneumonias being entered in the record office as lobar pneumonia), and two followed scarlet fever.




Occurrence of pneumonia by months: totals in outline, deaths in black.

Our typical and usual picture of bronchopneumonia was: gradual onset with cough and general malaise often following a bad cold; temperature running an irregular course, usually from 1 to 3 degrees higher at night than in the morning; fever lasting from one to four weeks and ending by lysis; indefinite and variable signs of consolidation in the lungs, often rapidly migratory, and purulent sputum. Most of our forty-six cases were of this description, although there were a few "abortive" cases in which there were only a few days of fever but in which, when examined, definite signs in the lungs were found both clinically and by roentgenoscopy. Such cases, if neglected, might readily have progressed to the more severe type described above. The postmeasles cases were similar except for the extraordinary degree of cyanosis and highly purulent, sometimes salmon colored sputum.

Our figures, then, are only roughly correct from this point of view, but we strongly believe that these two diseases should be considered separately.

TABLE 1.—MORTALITY AMONG WHITE AND COLORED PATIENTS WITH LOBAR PNEUMONIA AND BRONCHOPNEUMONIA

| | Number | | Died | | Mortality | |
|---|---|---|---|---|---|---|
| | White | Colored | White | Colored | White | Colored |
| Lobar pneumonia | 127 | 234 | 28 | 36 | 22.0% | 11.1% |
| Bronchopneumonia | 37 | 23 | 10 | 5 | 27.0% | 21.7% |
| Total | 164 | 257 | 38 | 41 | 23.2% | 15.9% |
| | 421 | | 79 | | 18.7% | |

The incidence of pneumonia among the colored troops was roughly eight times as great as among the white troops, there being only about 7,000 colored troops to 35,000 white troops in camp.

In the middle of February a different clinical and bacteriologic picture made its appearance, comprising about ten cases in all. These patients showed marked prostration early in the course, were apprehensive, and were very ill. The physical signs were those of consolidation of one or the other of the lower lobes. As the disease progressed, the percussion note was observed to become flat, and on performing thoracentesis, fluid in quantities varying from a few cubic centimeters to 1 or 2 liters was obtained. This fluid was thin, slightly cloudy, dirty orange colored and usually contained relatively few cells and organisms. The organisms were always found to be *Streptococcus hemolyticus*. Early operation yielded unsatisfactory results, and repeated aspiration succeeded in curing only one case. The procedure finally adopted was aspiration, followed in one or two days by rib resection low in the chest wall under local anesthesia, and the substitution of neutral solution of chlorinated soda for the pleural exudate slowly and only after any shock incident to the operation was recovered from. Four of these cases coming to necropsy showed interstitial bronchopneumonia as described perfectly by Kaufman and noted first in this country by Mathers[1] in his study of a series of cases of pneumonia of atypical cases occurring during and following attacks of grip in 1915-1916. He showed the presence of *Streptococcus hemolyticus* in the sputum and lungs of practically all these cases. Cole and MacCallum[2] have described these cases following measles in the soldiers at Fort Sam Houston, Texas. It is interesting to note that measles was not recognized in any of our cases. The sputum studied in five such cases yielded the Type IV pneumococcus in one and the streptococcus in four (hemolysis was not tested). There were other cases of atypical pneumonia in which the sputum yielded the streptococcus; but without mouse inoculation we are not prepared to say what importance this organism should be given.

1. Mathers: Tr. Chicago Path. Soc., April 1, 1916.
2. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, THE JOURNAL A. M. A., April 20, 1918, p. 1146.

During December the sputum of fifteen cases of lobar pneumonia was studied, after which time no more mice were available. These cases all yielded the pneumococcus and none the *Streptococcus hemolyticus*, indicating that at that time the *Streptococcus hemolyticus* was not playing an important rôle in the etiology of pneumonia.

Beginning Feb. 15, 1918, every available sputum was studied by the Avery technic. It is interesting to note that there were certain cases in which no sputum suitable for examination could be obtained, although every effort was made to procure it. We are inclined to believe that they belong to the streptococcus group. In cases in which good sputum was to be had, the Avery technic was altogether satisfactory for the determination of pneumococci when present, and in conjunction with cultures of the sputum directly on blood agar plates made fairly reliable substitute for mouse inoculation. However, mouse inoculation has proved most desirable in the study of sputum in cases in which pneumococci were not present in abundance or when other organisms were to be designated as the causative agent.

TABLE 2.—SPUTUM BACTERIOLOGY, FEB. 15 TO MAY 31, 1918

| | Lobar Pneumonia | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Type | I | II | II+ | III | IV | Strepto-coccus* | Undeter-mined† | Total |
| Number | 57 | 26 | 11 | 6 | 27 | 25 | 13 | 159 |
| Per cent. | 35.2 | 16.3 | 6.8 | 0.0 | 16.7 | 15.7 | 8.1 | 100 |
| Died | 3 | 5 | 2 | 0 | 6 | 2 | 2 | 20 |
| Mortality | 5.3 | 19.2 | 18.2 | 0.0 | 22.2 | 8.0 | 15.4 | 12.7 |
| | Bronchopneumonia | | | | | | | |
| Number | 6 | 0 | 2 | 0 | 9 | 14 | 2 | 29 |
| | Bronchitis | | | | | | | |
| Number | 0 | 2 | 2 | 0 | 4 | 10 | 0 | 19 |

* Cases in which the streptococcus was the prevailing organism in the Avery tube after five hours' incubation. Hemolysis was not determined. Many of these sputum specimens were of very poor quality and probably did not yield the etiologic organism.

† For a short period, bile tests were not used, and therefore some of these cases were probably Type IV pneumococcus.

In only one case of pneumonia from which a type pneumococcus (Type I) was isolated from the sputum did streptococcus empyema develop. We take this to indicate that the coexistence of these two organisms was rare in our series.

We are unable to say in what proportion of cases *B. influenzae* occurred. It was seen several times in lobar pneumonia and bronchopneumonia, and doubtless occurred frequently; but during that time our attention was turned toward discovering and treating with serum the Type I pneumococcus cases, and our laboratory staff was not large enough to permit of extensive studies. We did not find *B. influenzae* alone in any case, and doubt its significance in the instances in which it was noted.

## PNEUMONIA FOLLOWING MEASLES AND SCARLET FEVER

During the period covered by this report there occurred 316 cases of measles, in eighteen, or 5.7 per cent., of which, pneumonia developed. From the pleural fluid of five empyemas occurring in these cases the hemolytic streptococcus was isolated in four, and the organism was undetermined in the fifth. Of the twelve cases of measles terminating fatally, all were complicated by pneumonia and four also by empyema. In none of these cases was necropsy performed.

The sputum from four postmeasles cases was studied for the pneumococcus. A Type IV pneumococcus was found in three of them and no pneumococcus in the other one. This organism may possibly have a place in the etiology of the pneumonia, but the hemolytic streptococcus found in the pleural exudate is much more reliable evidence. Weichselbaum[3] called attention to the fact that the streptococcus may be present in the lung of a patient dying from pneumonia. The thought occurred to us that very possibly a streptococcus entering the lung as a secondary invader might outgrow the pneumococcus, especially in pleural exudates, and give rise to confusion.

TABLE 3.—MORTALITY IN MEASLES AND POSTMEASLES PNEUMONIA OCCURRING DURING THE SEVEN MONTHS COVERED BY THIS REPORT

| | Number | | Died | | Mortality | |
|---|---|---|---|---|---|---|
| | White | Colored | White | Colored | White | Colored |
| Measles | 243 | 73 | 10 | 2 | 4.1% | 2.7% |
| Postmeasles pneumonia | 15 | 3 | 10 | 2 | 66.6% | 66.6% |

From 147 cases of scarlet fever, three cases of pneumonia developed, all of which were complicated by streptococcus empyema. The one specimen of sputum examined yielded a Type IV pneumococcus.

Four patients developed scarlet fever while convalescing from pneumonia, one of whom suffered from streptococcus empyema.

TABLE 4.—MORTALITY IN SCARLET FEVER AND PNEUMONIA FOLLOWING SCARLET FEVER

| | Number | | Died | | Mortality | |
|---|---|---|---|---|---|---|
| | White | Colored | White | Colored | White | Colored |
| Scarlet fever | 147 | | 4 | | 2.7% | |
| Pneumonia following scarlet fever | 3 | 0 | 2 | 0 | 66.6% | |

The incidence of pneumonia following measles and scarlet fever is of peculiar interest at the present time. Scarlet fever is characterized above all other features by its complications, which are almost invariably streptococcal infections; this organism can usually be found in the throat. Pneumonia followed scarlet fever in 2 per cent. of the cases and measles in 5.7 per cent. This would seem to throw some doubt on the importance of the presence of streptococci in the throat flora of measles-pneumonia.

## COMPLICATIONS

Of the complications, empyema was by far the most frequently observed.

TABLE 5.—INCIDENCE AND BACTERIOLOGY OF EMPYEMA FOLLOWING LOBAR PNEUMONIA AND BRONCHOPNEUMONIA

| | Number | Empyema | Pneumo-coccus | Strepto-coccus | Unknown |
|---|---|---|---|---|---|
| Lobar pneumonia | 301 | 22 | 14 | 5 | 3* |
| Bronchopneumonia | 60 | 18 | 1 | 13 | 4 |
| Unknown lung condition | 11 | 11 | 0 | 11 | 0 |
| Total | 422 | 51 | 15 | 29 | 6 |

* The staphylococcus was obtained from one case of empyema following lobar pneumonia.

The cases classed as of an unknown lung condition include cases in which empyema was the first chest condition noted. Two followed measles, two scarlet fever, two tonsillitis, one peritonsillar and one inguinal abscess, probably all having some changes in the lung, either bronchopneumonia or interstitial bronchopneumonia. The remarkably high percentage of empyemas following bronchopneumonia is probably due to the fact that the streptococcus was the organism causing, or at least playing a large part in, the infection.

3. Weichselbaum: Med. Jahrb., 1886, p. 550.

The mortality of the pneumococcus empyemas was 40 per cent.; that of the streptococcus empyemas 41.3 per cent.

Two cases of lung abscess were seen following pneumonia, in one of which the patient recovered after operation.

Meningitis complicating pneumonia occurred four times, and was in all cases due to the pneumococcus and always followed lobar pneumonia. These four patients died.

Otitis media was reported in only three cases.

Purulent pericarditis developed in five cases, all of which terminated fatally. The streptococcus was grown from one of the exudates.

Acute nephritis was seen in postmortem examinations in one case, but albuminuria associated with casts occurred quite frequently, clearing up quickly during convalescence.

Pulmonary tuberculosis in patients suffering with pneumonia was diagnosed five times, three of the patients recovering from their pneumonia and returning temporarily to their commands.

Sixteen cases of pneumonia came to necropsy. Four were cases of lobar pneumonia, two of which were complicated by meningitis and one by pulmonary tuberculosis. Eight were of the type of bronchopneumonia usually seen, and four of these patients also had empyema. Four were of interstitial bronchopneumonia complicated by empyema from which the *Streptococcus hemolyticus* was isolated. One of these patients had scarlet fever; the other three cases were apparently preceded only by bronchitis.

## TREATMENT

The treatment of all pneumonias was systematized to a certain extent, each patient receiving a course of digitalis and other ordinary routine measures.

All the Type I pneumococcus cases were treated with serum as soon as the organism was ascertained. The Rockefeller hospital technic was followed as closely as Army hospital conditions permitted. In fifty cases treated we have seen nothing which could be construed as harmful effects from serum. Mild anaphylactic reactions were not uncommon but never dangerous, and no lasting complications resulted.

TABLE 6.—TYPE I LOBAR PNEUMONIA

| | Number | Died | Mortality |
|---|---|---|---|
| Treated | 30 | 3 | 9% |
| Untreated | 7 | 0 | 0% |
| Total | 37 | 3 | 5.5% |

The seven untreated patients had their crisis before the type pneumococcus could be determined, either from technical difficulties in the laboratory, or because the patients were seen late in the course, or because the crisis occurred early in the disease.

The three cases that terminated fatally were of the most unfavorable kind, and it seems to us unfair to ascribe these deaths to failure of the serum. One patient had a history of active pulmonary tuberculosis for two years, during which time he had been unable to do any work. At necropsy an advanced pulmonary tuberculosis with cavity formation was found; this condition, while suspected, had been demonstrated only a few days before death. Another patient had been ill five days before entering the hospital, and before treatment could be started had had pulmonary edema for thirty-six hours. The third patient was operated on for empyema on the second day of his pneumonia, shortly after which procedure treatment was instituted. After several days of treatment his temperature remained low and he was apparently recovering. Ten days after the operation, however, he suddenly developed meningitis and died within twenty-four hours. Gram-positive cocci were seen in smears from the spinal fluid, but cultures failed to grow.

We are much impressed by the fact that the earlier in the disease serum treatment was begun the more reliable and prompt was the effect. Cases treated on the second or third day practically never required more than three doses of serum, while our most obstinate cases were treated first on the sixth or seventh day and required more than ten treatments apiece. Crisis on the second, third and fourth day was very frequent among our treated cases of Type I pneumonia and infrequent among the other cases. In the untreated cases of Type I pneumonia, however, there were one or two which showed early crisis—enough, in fact, to prevent our drawing any definite conclusions from this one fact alone.

TABLE 7.—DISTRIBUTION OF LOBAR PNEUMONIAS AMONG THE COMPANIES OF THE THREE HUNDRED AND SIXTY-EIGHTH INFANTRY

| Company | B | C | D | E | F | G | I | K | L | M | Hdqs. | Mach. Gun |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | IV | S | S | S | II+ | IV | IV | S | I | I | I | S |
| | II | II+ | I | | | | S | | S | I | I | II |
| | | | IV | | | | S | | I | I | S | I |
| | | | IV | | | | I | | I | | | |
| | | | | | | | I | | II | II+ | | |
| | | | | | | | I | | I | II+ | | |
| | | | | | | | I | | IV | S | | |
| | | | | | | | S | | I | I | | |
| | | | | | | | II+ | | II+ | I | | |
| | | | | | | | | | I | II+ | | |
| Total | 2 | 2 | 4 | 1 | 1 | 1 | 9 | 1 | 10 | 10 | 3 | 3 |

It seems clear that the general mortality of lobar pneumonias during the period of typing (from February 15 to May 31) was kept as low as 12.5 per cent. by the low mortality in the Type I cases, which comprised 36 per cent. of this total. The part played by the serum is questionable; but the least we can say is that the results are very suggestive.

From the epidemiologic point of view only one regiment yields anything worthy of study. There occurred in the Three Hundred and Sixty-Eighth Infantry, composed of colored troops from Tennessee, forty-seven of the 157 typed lobar pneumonias. The remaining cases were nearly equally distributed among the other regiments of the camp and Laurel Encampment. Table 7 shows the distribution of these forty-seven cases in the regiment.

## SUMMARY

The large majority of cases of pneumonia seen at Camp Meade during the past year were typical cases of lobar pneumonia.

The colored troops were much more liable to pneumonia than the white troops, but their mortality was only two-thirds as great as the white troops. The morbidity may be partially explained by the fact that most of the colored troops were from Tennessee, while the white troops came from Maryland and Pennsylvania.

Primary bronchopneumonia or pneumonia following bronchitis is considered a very rare disease in adults. We saw forty-six cases of bronchopneumo-

nia which did not follow measles or scarlet fever or general anesthesia. They presented a fairly distinctive clinical picture. Empyema was a very frequent complication, and from all but two of the pleural exudates a hemolytic streptococcus was isolated.

I wish to emphasize the importance of early recognition of mild cases of bronchopneumonia so frequently passed over as bronchitis. These patients, if not put to bed, may go on to a severe illness.

The cases of interstitial bronchopneumonia seen by us were not in measles patients. One patient had scarlet fever for six days before fluid was detected. They presented a somewhat different picture of sudden onset, generally with a chill, great prostration, nervousness and apprehension. Early and rapid accumulation of fluid which had a typical, thin, cloudy appearance was the rule. The hemolytic streptococcus was recovered from these cases.

The percentage of postmeasles pneumonia, while relatively small (5.7 per cent.), was nearly three times as large as pneumonia following scarlet fever (2 per cent.). I feel that this point is not one to be overlooked in the study of the rôle of the streptococcus in pneumonia.

Serum treatment of Type I cases apparently yielded excellent results. I believe that the mortality was lessened, the febrile period shortened and the number of complications reduced by its use.

Type II pneumococci were recovered from the sputum of several patients suffering from bronchopneumonia and bronchitis. As far as I know, these patients had not come in contact with Type II pneumococcus pneumonia cases.

## SERUM TREATMENT OF TYPE I PNEUMONIA

### OCCURRING IN ASSOCIATION WITH AN EPIDEMIC OF INFLUENZA

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The epidemic of influenza that has passed through Camp Devens has led to a large amount of laboratory investigation, which will be the subject of a future report. It is sufficient to state that *Bacillus influenzae* of Pfeiffer has been established as the etiologic factor in this epidemic. Incident with the rise in the number of cases of the disease, pneumonia, clinically atypical from the classical acute lobar pneumonia, became very prevalent.

A small number of these were demonstrated to be due to *B. influenzae* alone. That many of them were not purely an influenzal process was shown by bacteriologic study of necropsies. Of the patients showing clinical signs of pneumonia, the usual percentage of Type I pneumococci was demonstrated in the sputum (approximately 20 per cent). Blood cultures during life revealed the same type in eight cases.

Since both the influenza bacillus and the pneumococcus were demonstrated so frequently in the sputum of these cases, some doubt arose as to the advisability of treating this mixed infection with an antipneumococcus serum. It is the purpose of this report to state briefly the effect of Type I serum in these cases.

Before the epidemic, serum of low titer (Squibb's) was used in the treatment of typical Type I lobar pneumonias. In this group nineteen recovered and five died—a mortality of 20 per cent. During the epidemic, with essentially the same treatment, thirty-one recovered and twenty-three died, a mortality of 43 per cent. In the height of the epidemic, the laboratory received a supply of high titer serum (Rockefeller). Under careful administration, fourteen patients recovered or are well on the way to convalescence, and one has died—a mortality of 7 per cent. The mortality of Type II was 50 per cent. (two of four patients) before, and 62 per cent. during the epidemic (thirteen of twenty-one patients).

The accompanying table is self-explanatory:

TREATMENT AND RESULTS IN TYPE I PNEUMONIA

| Before epidemic: | Recovered, No. | Died, No. | Mortality, Per Cent. |
|---|---|---|---|
| Treated with low titer serum..... | 11 | 4 | 27 |
| Complicated by influenza epidemic: | | | |
| Treated with low titer serum ..... | 12 | 13 | .. |
| Treated first with low titer serum, high titer serum being substituted late in the disease ..... | 5 | 6 | .. |
| | 17 | 19 | 53 |
| Treated with high titer serum..... | 14 | 1 | 7 |

It is not to be assumed that the figure of 53 per cent. represents in any sense the mortality of the pneumonia patients in this epidemic; it applies only to the more seriously ill who were selected for typing, since it was not feasible to type all the patients.

The one patient dying after treatment with high titer serum was admitted to the hospital after an illness of two weeks, in an extremely critical condition.

Not infrequently a moderate elevation of temperature (102 F.) persisted after the administration of liberal quantities of high titer serum (500 c.c.); under these circumstances the injections were usually discontinued, it being assumed that the temperature was probably due to *B. influenzae* or to some other organism than the Type I pneumococcus. A few of the patients improved promptly and definitely soon after the administration of serum; in the majority the improvement was gradual; some remained seriously ill for several days before convalescence began.

It seems inevitable that a certain number of patients must react more or less severely shortly after the injection of serum, especially if it is not carefully prepared. These reactions apparently produce more exhaustion of the patient than might conceivably be caused by moderate exercise. Such reactions can be justified only by the use of high grade serum producing definite and specific benefit to the patient.

### SUMMARY OF RESULTS

1. A normal number of Type I pneumococcus pneumonias were found complicating or following influenza.

2. The mortality in this group, when treated with serum of low titer during their entire course, or only in the last stages with high titer serum, was approximately double that similarly treated before the epidemic.

3. An unusually high mortality in Type II cases of pneumonia was found during the epidemic of influenza.

4. Patients treated with high titer serum during the entire disease showed a mortality of only 7 per cent.

5. It is considered inadvisable to inject pneumonia patients with large quantities of low grade serum.

## TREATMENT OF INFLUENZA PNEUMONIA BY THE USE OF CONVALESCENT HUMAN SERUM

### PRELIMINARY REPORT

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We are all aware of the high degree of fatality resulting from the pneumonia following the influenza of the present epidemic. All of our deaths have been due to the pneumonia complication and none to the influenza as such. Here at the Naval Hospital, the perceutage in the first groups reached as high as 50 or 60, and more recently the mortality has dropped to 30 per cent. No doubt this complication will continue to give a high mortality rate, especially when the disease invades new territory. For this reason, we have decided to publish our results in the treatment of a small group of cases, by the use of serum from patients convalescing from pneumonia, following an attack of influenza. It will be readily seen that a complete report at this time is out of the question, but we hope to present sufficient data to indicate the possibility in the use of convalescent serum so that further work can be carried on in territory where the disease is now active, and where proper equipment is at hand to carry out the necessary laboratory details.

Our observation and treatment of more than 400 cases of influenza pneumonia in this hospital has afforded opportunity to compare the various methods of treatment with a fair degree of accuracy.

The use of serum from convalescent influenza pneumonia patients was suggested by the junior writer as possibly having curative value, because of probable antibody content. The reason for this was the experimental evidence presented by Flexner and Lewis[1] with convalescent serum from poliomyelitis patients, and later the clinical evidence presented by Amoss and Chesney[2] during the poliomyelitis epidemic in 1916.

The serum was first tried on two patients, an officer and a nurse, with a very severe and extensive bronchopneumonia.

CASE 1.—The officer developed influenza, September 23. On the 26th, he had some evidence of a beginning bronchopneumonia. The temperature was 103; there was some elevation of pulse and respiration. On the 28th, he was desperately ill; the temperature was 104.4, respiration, 36, and pulse 104. He had considerable nausea and vomiting, looked toxic and had beginning cyanosis and vasomotor disturbances; also a profuse sanguinopurulent expectoration. One hundred c.c. of serum were given at 1:30 p. m., and another 100 c.c. at 8 p. m. The next morning, the 29th, the patient was distinctly improved; there were less nausea, cough and expectoration; the temperature was 102, respiration 40, and pulse 104. Seventy-five c.c. of serum were given at 11:30 a. m. On the 30th, a decided improvement was noted. At 8 a. m. the temperature was 100.8, respiration 30, and pulse 88. Seventy-five c.c. of serum were given; the temperature was normal at 4 p. m. The patient was in excellent condition, stating that he felt well. He made an uneventful recovery. The laboratory report of sputum injected into the peritoneum of a mouse showed influenza bacilli and Type IV pneumococcus.

CASE 2.—The nurse took sick with influenza, September 24. On the 27th, she had a continuous temperature of 103, respiration 36, and pulse 104. On the 29th, the temperature reached 104, respiration and pulse were the same. Areas of bronchopneumonia were present, especially in the right middle lobe. The patient was very toxic; she was unable to keep anything on her stomach for three days. Water was given by rectum. Marked cough and mucopurulent expectoration were present. At 11 a. m., the 29th, 100 c.c. of serum were given. On the morning of the 30th, the patient ate some breakfast and was much improved, although very ill; the vomiting had practically stopped. The temperature was 103, pulse 114, and respiration 22. Seventy-five c.c. of serum were given. October 1, the temperature was normal; all symptoms subsided and she made an uneventful recovery.

Up to the present time, thirty-seven cases in all have been treated with serum. This represents all the pneumonia patients who have been admitted since October 1, except the officer and nurse previously mentioned. Of this group, thirty are convalescent; six are under treatment; one is dead. Of the six under treatment, two are much improved; two have received only one injection of serum; two patients are not improved, one of whom is critically ill. Of the thirty convalescents, eight received treatment on the second day of the pneumonia; fifteen on the third day; four on the fourth day, and three on the sixth day. Of the six under treatment, three received serum on the second day; two on the third day, and one on the fourth day. The patient who died received the first serum on the fifth day.

### SERUM TREATMENT

Convalescent patients were bled as soon as convalescence was well established, the majority within a week or ten days of a drop to normal temperature. The serum was given as early as the diagnosis of the pneumonia complication could be made, so there has been no doubt about the lung involvement. The dose of serum has varied from 75 to 125 c.c. intravenously, and the interval between doses has varied from eight to sixteen hours.

Treatment was continued until there was no doubt about the recovery of the patient. The majority received about 300 c.c. Three received only 100 c.c., and two received from 600 to 700 c.c. It was found, as we anticipated, that there was a marked difference in the potency of the convalescent serum. At least ten out of seventy serums had no effect on patients. Under these conditions, the succeeding doses of serum were from other patients. Results from this serum are usually obtained in the first twenty-four hours after its use. If no results are obtained by this time, the serum from another donor should be used. An attempt was made to judge the potency of the serum by the amount of the lung involvement. This was done by obtaining a careful statement of the physical findings and the clinical course of the disease in the donors.

1. Flexner, Simon, and Lewis, P. A.: Experimental Poliomyelitis in Monkeys, THE JOURNAL A. M. A., May 28, 1910, p. 1780.
2. Amoss, H. L., and Chesney, A. M.: Jour. Exper. Med., 1917, 25, 581.

PROCEDURE

Wassermann tests were made on all donors as soon as possible in order not to waste time on bleeding those who showed a positive reaction.

Compatibility tests of donors' serum, with recipients' corpuscles, was made as soon as new cases appeared in the ward. Then usually from ten to fifteen serums were tested against the corpuscles of each recipient in order to have plenty of available serum for complete treatment.

Blood to the amount of about 800 c.c. was taken from each donor, under sterile precautions, 400 c.c. at a time on two successive days. Thus each donor yielded about 300 c.c. of serum. The blood was allowed to clot at room temperature for about an hour; then plate cultures were made, and the containers placed on ice over night. The separated serum was cleared by centrifugalizing at high speed, then bottled, and in most cases given the same day. Tricresol (0.3 per cent.) was used only in serum kept over twenty-four hours. It is interesting to note that only four patients had chills after the serum injections. All of these received serum containing tricresol, while three others receiving tricresolized serum gave no such reaction. At no time has a donor been inconvenienced by the withdrawal of the foregoing amount of blood. In fact, the majority wanted to give more.

An attempt has been persistently made to test the potency of the serum of the donors by complement fixation and by gross agglutination, using the recently isolated influenza bacillus as an antigen; but as yet we have found no method of testing the antibody content of serum except by its clinical action on recipients.

SUMMARY AND CONCLUSIONS

Treatment of influenza patients with the pneumonia complication by the use of convalescent serum was started at this hospital, Sept. 28, 1918.

Up to the time of writing, thirty-seven pneumonia patients have been treated. Of this group, thirty are convalescent; six are under treatment; one has died; all but one of these have a favorable outlook.

At present, the potency of the convalescent serum can be tested only by its clinical effect. Further attempts are being made to titer the serum.

Experience shows that the most beneficial results will be obtained by giving the proper serum within the first forty-eight hours of the pneumonia complication.

It has been our observation that the virulence of the organism has decreased in this hospital as the epidemic progressed; but making allowance for this diminution in severity of the pneumonia cases, it is believed that the serum from convalescent influenza pneumonia patients has a decided influence in shortening the course of the disease and in lowering the mortality.

This treatment requires the cooperation of a well equipped laboratory, where the proper laboratory procedure, as previously noted, can be performed, and should be used only by those who are prepared to have this necessary laboratory work carried out.

U. S. Naval Hospital.

**Keep Wounded Quiet.**—Since any sort of activity increases the demands of the tissues for extra oxygen, every care should be exercised to keep wounded men quiet. The tissue or cellular acidosis will thus be reduced to a minimum.—*Review of War Surgery and Medicine.*

# DERMATOLOGY IN A BRITISH GENERAL HOSPITAL IN FRANCE *

INCLUDING THE DIFFERENTIATION OF "I. C. T." (INFLAMMATION CONNECTIVE TISSUE)

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A year has now elapsed since this unit of the American Army took charge of this large British Hospital in France, and it will prove interesting to give in some detail the dermatologic phase of the work.

The dermatologic department consists of a hut containing forty-eight cots, and three tents, the largest holding forty and each of the others twenty; the four wards have a capacity of 128 patients. The bathing arrangements consist of four baths, two for scabies in a separate building, and one each for the transient venereal patients and the other skin cases, each in a separate room. Adequate sterilization is carried out for these patients' clothes. The staff consists of the officer in charge, a noncommissioned officer and two, occasionally three, enlisted men.

TABLE 1

| Condition | No. | Condition | No. |
|---|---|---|---|
| Abscess | 50 | Lupus erythematosus | 1 |
| Angioneurotic edema | 3 | Lupus vulgaris | 1 |
| Acne | 5 | Molluscum contagiosum | 1 |
| Acne varioliformis | 2 | Pityriasis rosea | 10 |
| Alopecia areata | 3 | Psoriasis | 26 |
| Boils | 381 | Pompholyx | 2 |
| Callosities | 8 | Papilloma | 2 |
| Carbuncle | 7 | Purpura | 5 |
| Dermatitis herpetiformis | 1 | Pediculosis corporis | 10 |
| Dermatitis | 35 | Pediculosis pubis | 8 |
| Epithelioma | 2 | Pernio (frost bite) | 50 |
| Erythema multiforme | 4 | Paronychia | 3 |
| Erythema nodosum | 1 | Seborrhea | 5 |
| Erythema (toxic) | 7 | Sycosis vulgaris | 4 |
| Eczema | 51 | Scabies | 510 |
| Eczema seborrhoicum | 6 | Septic ulcer | 210 |
| Ecthyma | 209 | Schoenlein's disease | 1 |
| Erysipeloid | 1 | Syphilis (secondary) | 37 |
| Folliculitis | 5 | Syphilis (late) | 15 |
| Herpes simplex | 1 | Tinea circinata | 2 |
| Herpes zoster | 18 | Tinea cruris | 6 |
| Hyperhidrosis | 56 | Tinea versicolor | 3 |
| Ichthyosis | 4 | Tinea sycosis | 5 |
| Impetigo | 122 | Urticaria | 7 |
| Keratosis palmaris et plantaris | 1 | Vitiligo | 2 |
| Keloid | 1 | Von Recklinghausen's disease | 1 |

There have been 1,913 skin cases treated during the twelve months period. This number does not include the 462 patients who remained here one or two days en route to venereal hospitals. This total also does not take count of many cases of urticaria and toxic erythema that developed in patients admitted to the hospital with other conditions; the toxic erythema has been chiefly observed following the injection of antitetanic serum. The very large number of patients admitted as battle casualties only a few hours from the battle line showing pediculi in their clothing or "nits" on the pubic and axillary hairs are also not included in the total just mentioned. As an example of the prevalence of "nits" on the hairs (pediculosis pubis), a few days following the admission of a large number of battle casualties, I examined 200 patients, of which number 190 showed ova.

Table I gives the variety and number of cases of each skin condition treated.

In a war in which millions of men are involved and in which there are of necessity thousands of wounded

*From the Skin Department of No. 16 (Philadelphia, U. S. Army) General Hospital, B. E. F.

and sick, certain class names have been given to various diseases, and their correct differentiation remains for elucidation to the specialist in the line to which the name is applicable. This differentiation frequently, because of the haste required in evacuation nearer the line, remains to be carried out in a base hospital or in some special center.

To an American dermatologist one of the most interesting class terms used in the present war is "I. C. T." (inflammation connective tissue), the synonym of the American Army term "pyodermia." These so-called I. C. T. cases are eventually weeded out into their proper nomenclature, in the event that a trained dermatologist is present at their final destination. Like so many class terms, however, I. C. T. is frequently used to cover a diagnosis so diametrically opposite from the original intention that a dermatologist's opinion is absolutely necessary.

Out of the 1,913 skin cases admitted to this hospital during the last twelve months, 995 have borne the diagnosis of I. C. T.

Table 2 shows these I. C. T. cases differentiated into their proper nomenclature.

TABLE 2.—DIFFERENTIATION OF I. C. T. CASES

| Condition | No. | Condition | No. |
|---|---|---|---|
| Abscess | 50 | Folliculitis | 10 |
| Ecthyma | 170 | Hyperhidrosis | 50 |
| Septic ulcer | 210 | Pernio (frost bite) | 25 |
| Boils | 211 | Callositas | 12 |
| Scabies | 86 | Herpes zoster | 2 |
| Carbuncle | 5 | Pityriasis rosea | 1 |
| Dermatitis | 17 | Tinea versicolor | 1 |
| Impetigo | 139 | Syphilis (late) | 6 |

Several hundred other cases diagnosed as I. C. T. on the "field card" have been excluded from this review as they comprised purely surgical conditions, such as gangrene of the feet, advanced stages of so-called trench foot, bone felon, necrosis of the bone, deep seated carbuncles, abscesses, and flesh wounds of various types.

Several points should be particularly emphasized in our review. First, many skin conditions may be treated over a considerable period without avail, either because of improper medication or because of an incorrect diagnosis. The latter point is well exemplified, as twenty cases of syphilis, eight in the second stage and twelve showing late skin lesions, were admitted to the hospitals improperly diagnosed.

Scabies also under war conditions is very different from that seen in civil practice, as the hands, and not infrequently the wrists, show little or no eruption, and pus complications are extremely frequent. Ecthyma, which occurs very rarely in private dermatologic practice and which is seen only in the poorest and most unkempt type of dispensary patient, is here very prevalent. Septic ulcer is another war complication that is of frequent occurrence and starts primarily with a mild trauma and is not infrequently observed on the feet, often over the Achilles tendon.

Emphasis should be laid on the fact that greater care is required in diagnosing between active and nonactive lesions of the skin. In numerous instances, patients have been sent to the hospital showing only pigmented marks (stains) on the skin, those areas signifying merely that inflammatory lesions had been present but that the active quality (redness) had entirely disappeared; following severe inflammations it may require many weeks for the stain entirely to disappear.

War dermatology, as consulting these tables plainly shows, consists chiefly of animal parasitic diseases and their complications. Exposure, skin trauma, and vegetable organisms are responsible for a large toll.

### CONCLUSIONS

All diseases of the skin, exclusive of uncomplicated cases of scabies, and pediculosis, should be treated in areas where dermatologic advice is available.

All patients with skin diseases requiring prolonged treatment should be sent to special hospitals or to special wards in designated hospitals where they will be under the care of a dermatologist.

Many wounded and sick patients have skin diseases which may be of unusual types, such as late manifestations of syphilis, or rare conditions. A dermatologist subject to call under such conditions is indispensable.

## New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

**BENZYL ALCOHOL.** — Phenmethylol. — Methylhydroxy Benzene.—$C_6H_5CH_2OH$.—An aromatic alcohol occurring as an ester in tolu and other balsams, and also produced synthetically by various processes.

*Actions and Uses.*—Benzyl alcohol is now being used as a local anesthetic by injection and on mucous membranes. It is said to be practically nonirritant and nontoxic in the ordinary concentrations and doses.

*Dosage.*—Benzyl alcohol is usually used in the form of a 1 to 4 per cent. solution in water or physiological sodium chloride solution. Such solutions may be sterilized by boiling, without danger of decomposition. Pure benzyl alcohol is markedly antiseptic. The technic of injection is the same as for other local anesthetics.

Benzyl alcohol is a colorless liquid with a faint aromatic odor, and a sharp burning taste. When placed on the tongue it produces numbness, even in very small quantities. It is soluble, 1 Cc. in 25 Cc. water, and miscible in all proportions with alcohol, ether, and chloroform.

Benzyl alcohol boils without decomposition between 200 and 206 C. When ignited it burns with a smoky flame.

It has a specific gravity of from 1.040 to 1.050 at 15 C., and 1.032 to 1.042 at 25 C.

Benzyl alcohol is neutral to litmus. If 2 or 3 drops are added to a strong solution of potassium permanganate acidulated with sulphuric acid, rapid oxidation takes place and the odor of benzaldehyde is plainly evident. On heating the mixture further oxidation takes place and then by adding dilute sulphuric acid and decolorizing the mixture with hydrogen dioxide, benzoic acid may be obtained by extracting with ether.

When volatilized in a Bunsen flame from an oxidized copper wire, no green color should be imparted to the flame (*chlorinated products*).

If 5 Cc. are shaken with 5 Cc. sodium hydroxide solution (5 per cent.) and allowed to stand one hour, no yellow color should appear in the aqueous layer (*aldehyde*).

Ten Cc. benzyl alcohol should leave no weighable residue on evaporation and heating until all carbon is burned away.

**Phenmethylol-H. W. & D.**—A nonproprietary brand of benzyl alcohol complying with the tests and standards for benzyl alcohol.

Manufactured by Hynson, Westcott & Dunning, Baltimore, Md.

*Phenmethylol Ampules, 1 per cent.-H. W. & D.*—Ampules containing 5 Cc. of a sterile solution of benzyl alcohol 1 Gm., in physiological sodium chloride solution 99 Gm.

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THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, OCTOBER 19, 1918

## THE BACTERIOLOGY OF MEASLES

In view of the deep concern felt in regard to measles since the recent experiences in our military camps, the summary in THE JOURNAL last week[1] of the literature on the bacteriology of this disease and its complications is of timely interest. It is evident that much of the work, especially the earlier, now has no value except possibly in a historical sense and as illustrative of the by-products of the development of bacteriologic science. The three bacteria that stand out as of most importance in connection with measles and its complications at this time appear to be the streptococcus, the influenza bacillus (using these names in a general sense) and the coccus recently discovered by Tunnicliff in the blood in the very early stages of measles and in the throat and nose. Of course, the pneumococcus, the diphtheria bacillus, the staphylococcus, etc., may cause complicating infections occasionally in measles, but so far as we know now not much oftener than in other acute infectious diseases.

The Tunnicliff coccus is a new factor, the exact significance of which is to be determined. At present it represents "the mysterious stranger" in the bacterial groups associated with measles. It may be the cause of the disease itself—it occurs in the blood even before the rash, and the patient responds to its presence by producing specific antibodies. Or it may be an early secondary invader coming in closely on the heels of the measles virus proper. The situation may seem to some, especially those who are prepossessed in favor of the view that measles is caused by a filtrable virus, as in certain ways similar to that which has developed in case of epidemic poliomyelitis by the demonstration by Mathers, Rosenow, Nuzum and Herzog and others, that a coccus, which may be classed as a nonhemolytic streptococcus and which in some ways resembles the Tunnicliff coccus, apparently occurs regularly in the central nervous system in poliomyelitis. So long as experimental poliomyelitis has not been produced by means of pure cultures of this coccus but can be produced by emulsions of poliomyelitic nervous tissue, we are practically driven to conclude that the coccus is a secondary invader and that the reported benefits of the serum of horses injected with the coccus may be due to its action on the coccus rather than on the primary cause. In both measles and epidemic poliomyelitis the infection is believed to enter the body by way of the throat and nose, and in so doing perhaps it opens the door for cocci normally present in the nasopharynx in small numbers. But enough of speculation! It is evident that further observations and experiments of a crucial character are needed to settle the questions raised in regard to the Tunnicliff coccus.

The part played by the influenza bacillus in measles is not clearly established. There seems to be no doubt, however, that it occurs more frequently by far in the throat and nose and in the lungs in measles than in health. This bacillus seems to have a somewhat similar relation to whooping cough and scarlet fever as to measles, and the reasons for this association as well as its possible dangers to the patient are difficult problems that should not be neglected.

It is interesting that the presence of streptococci in measles bronchopneumonia was recognized in practically the first bacteriologic investigation of measles, namely, by Babes, and by Cornil and Babes, as long ago as the early eighties of the last century. In spite of these early observations and of the later observations by Craig, Lorey and others, this bronchopneumonia and other complicating infectious lesions did not receive due consideration, especially from the point of view of spread and prevention, until the recent and highly valuable work in our American Army camps. Here it has been shown that hemolytic streptococci may spread rapidly among persons closely associated, and especially among measles patients when cared for in wards in the old way without individual isolation, and cause extensive outbreaks of bronchopneumonia; further, that when the patients are isolated under conditions that prevent contact with persons, including fellow patients, that may harbor streptococci, streptococcus bronchopneumonia and other serious infectious complications may be avoided. It is evident, of course, that this new and more complete individual and selective isolation, including protection by means of face masks and other measures[2] against transfer by mouth, throat and nose bacteria, tends to avoid not only streptococcus but also other infections.

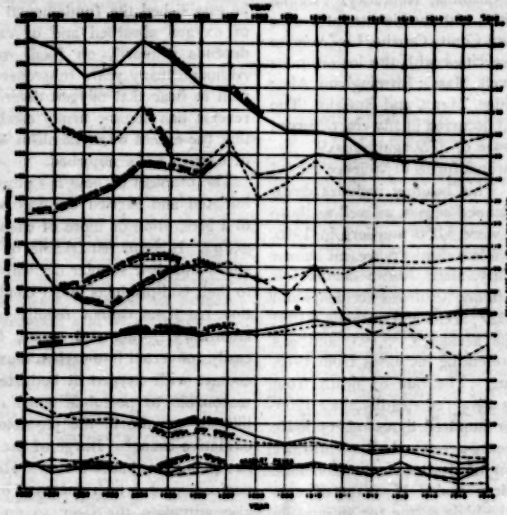
It has not been determined whether the streptococci concerned in the bronchopneumonia in measles and other allied conditions are of the same strain or belong to different groups. Only hemolytic streptococci have been encountered thus far in the bronchopneumonia

1. Hektoen, Ludvig: The Bacteriology of Measles, THE JOURNAL A. M. A., Oct. 12, 1918, p. 1201.

2. Weaver, G. H.: The Value of the Face Mask and Other Measures in the Prevention of Diphtheria, Meningitis, Pneumonia, etc., THE JOURNAL A. M. A., Jan. 12, 1918, p. 76. Capps, J. A.: A New Adaptation of the Face Mask in Control of Contagious Disease, March 30, 1918, p. 910; Measures for the Prevention and Control of Respiratory Infections in Military Camps, Aug. 10, 1918, p. 448. Haller, D. A., and Colwell, R. C.: The Protective Qualities of the Gauze Face Mask, Oct. 12, 1918, p. 1213. Doust, B. C., and Lyon, A. B.: Face Masks in Infections of the Respiratory Tract, p. 1216.

in our camps. It is altogether probable that not much can be done by way of protective inoculation before we learn more about the unity or plurality of streptococci and their immune reactions. Lathrope[3] reports a remarkable outbreak of acute mastoiditis after measles and other infectious diseases, and here streptococci of the *S. viridans* type appeared to predominate. Further observations are required to establish definitely the part taken in such processes by nonhemolytic streptococci. Advocates of the view that localization of streptococci may depend on more or less newly acquired special "affinities" naturally will find strong support for this view in the report by Lathrope.

Still another perplexing question is this: Why in the assembling and training of new armies in other countries, like England and France, did not similar outbreaks of serious streptococcus complications arise after measles? We cannot say whether the decisive factor has been a definite racial susceptibility on our part or the evolution here for some reason of especially virulent streptococci. It is true that our Southern troops appear to be more susceptible to infections than Northern troops, but the study so far given to this problem leaves us still in the dark.



Changes in death rate, 1900-1916.

The many problems that remain unsolved must not lead us to belittle in any way the recent advances. The nature, dangers, mode of spreading, and means of prevention of bronchopneumonia in connection with measles and other diseases are now better understood than ever before. In 1847, in his classical study of measles in the Faroe Islands, Panum wrote that isolation is the way to prevent its spread. Today we can say that the way to prevent the complication that more than anything else makes measles a dangerous disease, namely, streptococcus bronchopneumonia, as well as other secondary infections, is also isolation—prompt, selective and protective. This new principle must now be applied in private practice and in civil hospitals, because undoubtedly even here many deaths from bronchopneumonia and secondary infections generally in measles and other acute diseases are preventable.

3. Lathrope, G. H.: Acute Mastoiditis as a Complication of Infectious Diseases, THE JOURNAL A. M. A., Aug. 10, 1918, p. 451.

## MORTALITY STATISTICS FOR 1916

The report of the Bureau of the Census on the mortality statistics covering the registration area for 1916 has just appeared. The death rate was 14 per thousand population, slightly exceeding the rates for 1914 and 1915, which were 13.6 and 13.5, respectively, but slightly lower than that for 1913, which was 14.1. Of the 1,001,921 deaths that occurred in the registration area, 54.7 per cent. were males and 45.3 per cent. females. Infants under one year of age constituted 16.4 per cent. of all deaths, continuing the gradual decrease that has taken place since 1900 in deaths of infants under 1 year. In 1900 this rate was 20.7 per cent. of the total. The deaths of infants under 5 years have gradually decreased from 30.4 per cent. of all deaths in 1900 to 23.4 per cent. in 1916. The highest death rates in 1916 occurred in Maryland with 16.5; Connecticut, 16.3, and New Hampshire, 16.1; the lowest rates in Washington, 7.7; Colorado, 10.3; Utah, 10.4; Minnesota, 10.7, and Kansas, 10.9.

The accompanying chart indicates the changes in the death rate from certain important causes of death from the years 1900 to 1916. The death rate from tuberculosis continues gradually to decrease; the rate for pneumonia, though gradually decreasing, showed a slight rise in 1916; the death rate from diseases of the heart continues to rise gradually. The death rate from intestinal diseases of infants under 2 years continues gradually to decrease; the rate from cancer and from nephritis and Bright's disease continues at a very gradually increasing level. Typhoid fever and diphtheria likewise continue at a low rate without marked decrease or increase, and in the same way measles, whooping cough and scarlet fever change but little during this period.

Throughout the mortality statistics the one outstanding feature is the much higher death rate that persists

among the colored as compared with the white population. This can, of course, be accounted for by many well-known factors.

At this time it is interesting to note the mortality from influenza in 1916. In that year influenza developed in epidemic form and caused 18,886 deaths, equivalent to a rate of 16.4 per hundred thousand population, representing an increase of 65 per cent. over the rate for 1915, which was 75 per cent. higher than that for 1914. The rate for this disease will undoubtedly be higher for 1918 than for 1916.

The death rate for suicide in the registration area for 1916 was the lowest recorded for the past ten years. The five states that showed the highest rates were California, Montana, Indiana, Vermont and Missouri. The five states with the lowest rates were North Carolina, South Carolina, Kentucky, Virginia and Kansas. The five cities with the highest rates were San Francisco, Bridgeport, Conn., Omaha, Los Angeles and Indianapolis. Those cities with the lowest rates were Scranton, Pa.; Lowell, Mass.; Birmingham, Ala.; Richmond, Va.; Cambridge, Mass., and Buffalo. The most notable increase that occurred in any city occurred in Indianapolis, an increase of 27.9 against 16.9.

Excluding suicides, various forms of violence caused 65,121 deaths in 1916. This heading includes death from accidental and undefined causes, as well as those from homicide. There were 5,050 murders in 1916. The greatest number of violent deaths represent human carelessness and instability, since 10,775 deaths followed traumatism from falling; railroad accidents and injuries accounted for 8,127; accidental burning, 6,185; burns, 5,726; automobile accidents, 5,193, and gas poisoning, 2,927, all representing increases from 1915, except accidental burning. The rate of death from automobile accidents has advanced steadily since 1906, when it stood at 0.4 per hundred thousand, to 1916, when it stood at 7.3. Twenty-seven and nine-tenths per cent. of the total number of deaths from automobile accidents were of children under 15 years of age. The five cities showing the highest rate for automobile accidents are, in order, Detroit, Bridgeport, Conn., Los Angeles, New Haven, Conn., and Cleveland; the five cities showing the lowest rates are Spokane, Louisville, Ky.; Fall River, Mass.; Portland, Ore., and Lowell, Mass. The rates for three large cities are: Chicago, 9.7; Philadelphia, 8.9, and New York, 7.7.

Of course, one of the greatest factors affecting statistics of the causes of death is the accuracy of physicians' reports. The Census Bureau has made a continuous endeavor to increase accuracy, and results show a gradual improvement. The bureau has sent to physicians two pamphlets bearing on this subject, namely, "The Relation of Physicians to Mortality Statistics," and "The Physician's Pocket Reference to the International List of Causes of Death." Physicians should study these carefully and endeavor to use definite terms in reporting causes of death. The value of mortality statistics in determining lines of endeavor for prophylaxis against disease cannot be overestimated. Every physician should do his utmost to aid in securing accuracy.

It is to be regretted that the publication of these annual reports is still sadly delayed. There certainly can be no good reason for a delay of more than a year and a half.

## OXIDATION IN THE BODY

The French scientist, Lavoisier, who first discovered the true importance of oxygen and gave it its present name, early declared that life processes are those of oxidation with the elimination of heat. In his classic researches which opened the modern era in the science of nutrition before the close of the eighteenth century, he established the fundamental fact that the quantity of oxygen absorbed and of carbon dioxid excreted depends primarily on food, work and temperature. Although many years subsequently it was not uncommon to hear that oxygen determines metabolism, the reverse has become firmly established today, namely, that the extent of metabolism determines the amount of oxygen to be absorbed.

The problem of how the physiologic oxidations are initiated and carried out has been a perplexing one to a generation or more of chemically trained investigators. It seems remarkable, of course, that our foodstuffs and their simpler derivatives should be oxidized to their end-products under conditions in which oxidation reactions cannot readily be carried out in the laboratory. Fats and sugar, for example, are not easily converted into carbon dioxid and water by mere contact with oxygen at body temperature. It seems reasonable to postulate some intermediating agency like an enzyme in the physiologic execution of the oxidative change. Burge of the University of Illinois has championed such a view. He has found that many performances which increase oxidation in the body also stimulate the liver to an increased output of catalase, an enzyme in the tissues having the property of liberating oxygen from peroxids. The conclusion is reached by this physiologist that catalase is the enzyme principally responsible for oxidation in the body. In the latest experiment in relation to this topic,[1] a comparison has been made of the catalase content of the blood before and after introduction of food materials into the body. Thus it was found that simple sugars rapidly led to an increase in the oxygen-liberating enzyme—in some cases as much as 40 per cent. above normal; with fats there was also a pronounced gain, the rapidity of its occurrence depending on their rate of alimentary absorption. Meat, as a specimen of protein food, provoked an increase in proportion to the liberation of its digestion derivatives

1 Burge, W. E.: How Food and Exercise Increase Oxidation in the Body, Science, Aug. 16, 1918, p. 174.

ready for transport in the circulation. Moderate exercise also had an augmentative effect on the enzyme concentration in the blood; although work up to the stage of extreme fatigue had an effect quite different.

From observations of the sort hastily reviewed, the conclusion is drawn by Burge that food and exercise produce an augmentation in catalase with resulting increase in oxidation by stimulating the liver to a larger output of this enzyme. There is a tendency to quote such statements without a due recognition of the limitations to our knowledge contained in them. It is one thing to observe the liberation of oxygen from peroxid in a test tube under the influence of a tissue extract or fluid; quite another problem is concerned in connecting such experimental facts with the complexities of reaction demanded by the known conditions of tissue oxidation. The mechanism of the latter remains, now as before, obscure and a subject for explanation.

## Current Comment

### VACCINES IN INFLUENZA

With the appearance of the epidemic of influenza, reports began to appear, chiefly in newspapers, as to new serums, vaccines, drugs and other methods for checking and even for curing the disease. A few samples of such as have come to THE JOURNAL appear in our Tonics and Sedatives Department this week. In Massachusetts, Commissioner E. R. Kelly appointed two committees to investigate the value of influenza vaccines as a preventive agent and as a treatment of the disease. The first committee, a special board for scientific investigation, consisting of Dr. M. J. Rosenau, chairman, and Frederick P. Gay and George W. McCoy, was appointed to consider the evidence available on the prophylactic and therapeutic use of vaccines against influenza. This committee presented the following conclusions:

1. The evidence at hand affords no trustworthy basis for regarding prophylactic vaccination against influenza as of value in preventing the spread of the disease, or of reducing its severity. The evidence from the present epidemic, though meager, suggests that the incidence of the disease among the vaccinated is smaller than among the nonvaccinated. The board, therefore, concludes that further experimental evidence should be collected.

2. The evidence at hand convinces the board that the vaccines we have considered have no specific value in the treatment of influenza.

3. There is evidence that no unfavorable results have followed the use of the vaccines.

The second committee, known as the Special Board of Statistical Investigation, consisted of Dr. George C. Whipple, chairman, William H. Davis and F. C. Crum. This committee reported:

1. The weight of such statistical evidence as we have been able to accumulate indicates that the use of the influenza vaccine which we have investigated is without therapeutic benefit. Exceptional cases where apparent benefit has resulted from the use of the vaccine can be matched by other cases where similar recoveries have been made without vaccination.

2. The statistical evidence, as far as it goes, indicates a probability that the use of this influenza vaccine has some prophylactic value.

3. There is also some evidence to the effect that other methods of protection, such as open-air treatment and the use of proper masks, are effective in protecting exposed attendants, and the use of vaccine should not be taken as an excuse for omitting such safeguards.

As a result, the following recommendations were made:

That the state encourage the distribution of influenza vaccine intended for prophylactic use, but in such manner as will secure scientific evidence of the possible value of the agent. The use of such vaccine is to be regarded as experimental.

That the state shall neither furnish nor endorse any vaccine at present in use for the treatment of influenza.

These reports are conservative, and offer to other health commissioners and their communities a reliable guide as to procedures that should be adopted before subjecting or trying out on the public any method of prevention or treatment that may be offered. These matters are the domain of medical science, and medical scientists of recognized ability should be called on to make the decision.

### SCHEDULE OF STUDIES FOR PREMEDICAL STUDENTS

On another page[1] is published a special circular from the Committee on Education and Special Training of the War Department, which gives the program of studies for premedical students in the Students' Army Training Corps. The course is arranged only for the first three months of the college year and consists of inorganic chemistry, 21 hours per week; biology, 12 hours per week, and war issues, 9 hours per week; or a total of 42 hours of professional instruction, to which are added 11 hours per week of military instruction consisting largely of drill and physical training. As we intimated recently,[2] this course was previously outlined for students in the Divisions of Chemistry and Chemical Engineering, the only change being the substitution of twelve hours of biology for the twelve hours of mathematics. As suggested in the special circular, premedical students may profitably be taught their chemistry in the same classes with students in the Division of Chemistry and Chemical Engineering. Special classes in physics, chemistry and biology will be provided for students who have already completed their first year of premedical work, so that in the shortest time possible they may complete the balance of the work in those subjects at present required for admission to medical schools. The schedule of work for the balance of the premedical course is to be submitted later. The entire premedical course is to be condensed so that it may be completed in four quarters (instead of six) of twelve weeks each. The eleven hours per week of required military instruction will provide the physical training highly desirable for students who are expected to master the work laid down in this condensed schedule. In the past, it has been claimed that the curricula of our colleges of liberal arts have been so easy that they fail to develop the

1. This issue, p. 1319.
2. Uncertainty Regarding Premedical Students, Current Comment, THE JOURNAL A. M. A., Oct. 5, 1918, p. 1141.

students' powers of industry and application. Permanent changes in their curricula may result, therefore, if the present plan of instruction for premedical students works out as well as it is hoped by those who prepared it.

### EFFECT OF QUININ ON PROTEIN METABOLISM

There are numerous drugs known to stimulate metabolism and facilitate the destructive disintegration of protein in the body. Few, on the other hand, are the instances of decreased nitrogenous metabolism attributable to the action of chemical compounds introduced into the organism in pharmacologic doses. Quinin is an illustration of the latter type; it is known to affect the nitrogen balance in a favorable way, so that the use of the drug in fevers attended with considerable tissue destruction has even been defended on the basis of its conserving effects. Riddle and Anderson[1] of the Station for Experimental Evolution at Cold Spring Harbor, Long Island, have demonstrated the comparable behavior of quinin on structures specifically concerned with the production or secretion of protein. Thus the drug was found to have a conserving action in birds on functions of the oviduct, the essential output of which is the egg albumin. The amount of this was abnormally decreased under quinin fed to laying ring-doves; there was also a reduced size of the yolks. The investigators believe the reductions and fluctuations in size of the ova are consonant with the view that, in these cases, the size attained is governed by restrictions placed on the protein metabolism rather than on the general metabolism.

### VOLUNTARY ACCELERATION OF THE HEART BEAT

Ability to bring about voluntary acceleration of the heart beat in man is a rare and interesting accomplishment. West and Savage[2] of the Peter Bent Brigham Hospital, Boston, have just recorded the fifteenth authentic case in medical literature. The subject was a healthy medical student who had no cardiovascular symptoms and had never experienced attacks of tachycardia. He discovered the ability to increase his heart rate voluntarily during the course of his studies in physiology. During the period of acceleration there is a slight increase in the rate and the depth of respiration, and the pupils dilate moderately as recorded by other observers. No definite physical effort is made, but constant mental concentration must be maintained, which, after several closely repeated trials, becomes quite fatiguing. The current belief as to the mechanism of this acceleration assigns the chief participation to the action of the accelerator nerves.[3] The further possibility that the speeding up of the heart may be due to release from vagus inhibition has usually been rejected. In the new case, atropin, which paralyzes the vagus endings in the heart, had an undeniable effect in decreasing the ability voluntarily to change the heart rate. Therefore West and Savage believe that in this person their observations "point more to vagus than to accelerator domination during periods of acceleration." It is doubtless the same mechanism that accounts for the acceleration accompanying exercise. At present, however, it cannot be denied that both vagus and accelerator nerves may share in the speeding up of the heart, or that the effect of each may, if necessary, augment that of the other.

1. Riddle, O., and Anderson, C. E.: Studies on the Physiology of Reproduction in Birds, VIII, The Effects of Quinin on the Production of Egg Yolk and Egg Albumin, Am. Jour. Physiol., 1918, 47, 92.
2. West, H. F., and Savage, W. E.: Voluntary Acceleration of the Heart Beat, Arch. Int. Med., September, 1918, p. 290.
3. Favill, J., and White, P. D.: Heart, 1917, 6, 175.

## Medical Mobilization and the War

### THE AMERICAN DOCTOR IN ENGLAND

Sir William Osler sends the following poem from the *Westminster Gazette* of September 18, in which it was published under the caption "The Doctor." He says that it "expresses well what the patients think of the American boys in the English hospitals. They have done splendidly. We have a dozen fine fellows in the orthopedic department here. The enthusiasm for the U. S. is intense—and how well deserved!"

*Oh, it's grand of a man who comes five mile*
*For the sake of your pain-racked form;*
*Who will leave his rest with a cheery smile,*
*And the darkness dare or the storm.*
*Who has ne'er a sigh though his door-bell ring*
*When the hour of the morn is small,*
*But hurries along, though the shrill winds sting,*
*At the haste of a patient's call.*

*Oh, it's grand, is it not?—and just as true*
*That he prides himself not a whit,*
*But is glad if his skilled hand bring to you*
*Some ease in the soothing of it.*
*His duty?—just so! but it's grand no less,*
*No matter the time or the task,*
*That he readily gives in hours of stress*
*Of his gifts—and to all who ask.*

*But what shall you say of the man I know,*
*Who, to ease our aching and pain,*
*Has come not five but five thousand miles so*
*In darkness, in blast, and in rain?*
*Oh, it's grand when I think—you'd think so too!—*
*(Though you honor your own no less)*
*To lie in a ward with the men in blue,*
*Where your doctor's khaki's "U. S."*

JAMES T. SKINNER.

### Hospitals for Reconstruction

The Surgeon-General of the Army has taken over Fort Snelling, Minn., Fort Sheridan, Ill., and Fort Benjamin Harrison, Ind., and will convert them into additional general hospitals for the reception of sick and wounded soldiers returned from abroad. They are to be reconstruction hospitals and to fit the wounded for vocational instruction. Each hospital unit will accommodate 1,000 patients.

### Examination for Navy Medical Corps

An examination will be held, October 30 and 31, to fill 326 vacancies in the regular Medical Corps of the Navy. The examination will be open only to present members of the Medical Corps, N. R. F., who are between 21 and 32 years of age.

### Colonel McCulloch to Prepare Medical History of the War

Col. Champe C. McCulloch, Jr., M. C., U. S. Army, executive officer of the Board for Collecting and Preparing Material for a Medical and Surgical History of American Participation in the European War, has arrived in France, to establish his administration for this purpose. During his absence Lieut.-Col. Casey A. Wood, M. C., U. S. Army, will be in charge of this work in the Surgeon-General's Office.

### Promotion of Retired Medical Officers

Senator Shepherd, on September 26, introduced a bill authorizing the President to promote to brigadier-general, retired, those officers of the Medical Department who entered the service of the United States over thirty-five years ago, and who at this time, though retired, are in active duty in war work.

### Naval Base Hospital in Scotland

Naval Base Hospital No. 3, commanded by Capt. Charles M. De Valin, M. C., U. S. Navy, which was organized with personnel mostly from Los Angeles, is now located in Scotland, where it occupies a building formerly utilized by the Royal Army Hospital Service. It has accommodation for 625 patients with possibilities of expansion to accommodate 825, and will care for patients in the naval dressing, and the personnel of the British and American Expeditionary Forces.

### Physical Qualifications for Medical Service with the Red Cross

We are informed by Dr. Alfred E. Shipley, secretary of the medical advisory committee of the American Red Cross, Washington, D. C., that every individual going abroad, in whatever capacity, in Red Cross work is required to pass a satisfactory physical examination. In the medical division physicians are sometimes accepted for Red Cross work who, because of physcal disqualification, are unable to secure commissions in the Medical Department of the Army. It is appreciated by the Red Cross that such physicians may be used in the medical work among the civilian population abroad as they are not placed under the strain incidental to work in the war areas.

### Promotions

The following officers have been promoted from major to lieutenant-colonel: Edward J. G. Beardsley, Philadelphia; Thomas P. Lloyd, Shreveport, La.; James A. Mattison, Hot Springs, S. D.; Joseph Sailer, Philadelphia; Oliver H. Campbell, St. Louis; Bertram F. Alden, San Francisco; Walter W. Crawford, Hattiesburg, Miss.; Jonathan E. Burns, Baltimore; Charles N. B. Camac, New York; William C. LeCompte, Bristol, Pa.; Harry T. Summersgill, San Francisco; Charles H. Schlichter, Elizabeth, N. J.; Edward W. Pinkham, New York; William J. Bell, Washington, D. C.; Warren A. Dennis, St. Paul; Joshua C. Hubbard, Boston; Wiley E. Woodbury, New York; Edmund J. Doering, Chicago; John E. Jennings, Brooklyn; William W. Percy, Rochester, N. Y.; John H. Blackburn, Bowling Green, Ky.; Edmund Moss, New Orleans; Henry R. Brown, Albuquerque, N. M.; Robert Smart, Coronado, Calif.; Herbert H. Smith, Highland, Kan.

### Revision Standards of Physical Examination

The office of the Provost Marshal-General has just issued to the draft executives of all states, a revision of Form 75, the Standards of Physical Examination. The changes are few, and are mainly with a view to making available the greater number of registrants having remediable defects (Group B), by transferring them to Group C for special or limited service. Thus, when inducted and accepted at camps, the defects may be corrected when convenient; meanwhile, the Army will have the benefit of the service of these men.

Registrants who have heretofore, on examination, fallen into Group B (the deferred remediable group) and now, under the revised Form 75, have physical defects placing them in Group C (as physically qualified for special or limited military service), are at once to be reviewed, reexamined if necessary, and recorded in Group C, *subject to call for special or limited military service.*

The next most important change is that which cites certain variations from Army physical standards in the assignment of inducted men to the Navy and the Marine Corps. This states:

5. Navy standards of physical requirements conform in the main to those of the Army included under Group A. But registrants who, on examination, present the following defects, shall not be accepted for service in the Navy or Marine Corps:

Eyes: (A) Vision less than three quarters of the normal in either eye. (B) Color blindness.

Skin: (A) Parasiting affections, including pediculosis, ringworm and scabies. (B) Eczema. (C) Psoriasis.

Genito-urinary organs and venereal diseases: (A) Absence, atrophy or nondescent of both testicles. (B) Venereal disease, any type or stage.

Height: Over 74 inches.

#### ARMY TO HAVE SPECIAL REGULATIONS

Form 75 pertains only to the Selective Service and will not be issued to the Army. In its stead, the Adjutant-General will distribute to all mobilization points a pamphlet known as Special Regulations No. 65, War Department, which is identical with Form 75 as to physical standards.

#### DESTRUCTION OF PREVIOUS EDITION

On receipt of the Second Edition of Form 75, old copies of the former edition should be at once destroyed, with the exception of such as are needed to complete permanent reference files.

### From a Rookie at Fort Oglethorpe

The following is from a personal letter, and not intended for publication. As Fort Oglethorpe is the first assignment to the great majority of physicians who enter the Medical Corps, a record of the experience of "one of us" will be read with satisfaction.

Got here eight days ago, or perhaps nine—all days are alike now—and am in a good bunch of fellows, from 40 to 54 years old and growing younger visibly day by day. If you ever desire to lose some of your sylphlike rotundity I would prescribe this Greenleaf process of reduction and guarantee results. Everything undergoes reduction here—at once you become a private, reduced from lieutenant, captain, or what not—and down goes all your fancied military glory at one crack. I have learned with due humility to my soul's salvation that there are certain ways inviolate in which to fold blankets, scrub cots, oil floors, fill water buckets, and hang up clothes. Also that to do your own laundry work may be advisable. It's the greatest institution of applied learning in the world and you could not begin to pay me for the experience. I enjoy everything from soup to nuts, including rolling in the clay dirt at 6:15 every morning. By evening that tired feeling assumes enormous proportions and at 9:30 you go to sleep with a bang and are only roused at 4 a. m. or so by the procession of prostates on their parade to the latrine. This is a community existence applied to every detail of one's daily functions; the monastic soul receives a rude shock at every turn. It's the biggest game that any fellow ever was privileged to join in with, and I am really sorry for those who have missed the chance to go to Camp Greenleaf. Everyone is enthusiastic and full of "pep," and the older men have my unbounded admiration for their gameness. We are kept on the jump from early morning till 9:30 p. m., and have to make use of every interval, for at any moment you may be (and usually are) called out for something or other, usually extra drill, or policing the grounds, or other equally fascinating pursuits.

Because we started a new company and I was one of the first two arrivals, the honorable assignment of Barracks Sergeant fell to my lot, and that means responsibility for the condition of the barracks. It's a sort of masculinized housekeeper's job and with my staff of highly trained assistants (trained in every respect but housekeeping) the setting sun each day finds our work well done, but the inspector takes a different view of the matter and isn't a good inspector unless he can find something to criticize, which he always does.

### INFORMATION FOR MEDICAL SCHOOLS AND PROGRAM FOR PREMEDICAL STUDENTS

The War Department, Committee on Education and Special Training, has issued a special bulletin relating to the courses to be followed by premedical students:

1. Beginning October 1, terms should be granted in all schools on a quarterly basis, in each term twelve weeks being devoted to instruction and examinations.

2. Members of the Students' Army Training Corps will be under military discipline continuously, and, as soon as proper arrangements can be completed, they will live in barracks as prescribed by the military authorities. A definite schedule of work must be arranged, eleven hours per week being devoted by medical students to practical military instruction (drill, etc.), theoretical military instruction and physical training, and forty-two hours per week to professional instruction, this time including lectures, recitations and supervised study. In the case of students who have pursued for at least one year at an approved institution such studies as form part of the program of preparation for the Medical Corps, the Committee on Education and Special Training may authorize a reduction in the hours of military instruction to not less than six hours provided the reduction is made good by the substitution of a corresponding number of hours in approved medical subjects. (For the schedule for premedical students see 6 and 7, below.) Seniors should enter the Students' Army Training Corps; but it is expected that special

arrangements will be made for those who are serving as interns in hospitals, and possibly for other advanced students—probably by means of furlough.

3. Medical schools are classified as professional schools under the Special Regulations for the Students Army Training Corps (Aa.1, par. 26). The program of studies for these schools is not yet prescribed, but a program approved by the Committee on Education and Special Training will be sent to the schools in the near future. In the meantime the schools should continue their existing programs except for such modifications as may be necessary to introduce military training, and the course in war issues.

4. Students intending to prepare for the study of medicine should register as premedical students.

5. Premedical students must pursue a course that is approved as a premedical course by the Committee on Education and Special Training.

6. A special war issues course is prescribed for all students who are not excused under the following provisions of par. 26, Special Regulations:

"The District Educational Director (Section A—Collegiate Section) may empower colleges to excuse from this course:

"(1) Members of the S. A. T. C. who have had a similar course even though not identical in every detail, or

"(2) Members of the S. A. T. C. who have had at least two years of work of collegiate grade in an approved institution and who should be required to concentrate the whole of their time on advanced studies."

The war issues course is described in Special Descriptive Circulars C.c. 12 and C.c. 13.

7. For the first quarter of the premedical course the following program is prescribed: Inorganic chemistry, twenty-one hours per week; biology, twelve hours per week; war issues, nine hours per week, and military instruction, eleven hours per week. This course corresponds to the course approved for students of chemistry and chemical engineering with the substitution of biology for mathematics. Students in the premedical group may profitably be taught in chemistry in classes together with students taking the chemistry program. The program for the remaining terms of the premedical course will be submitted later. The premedical course will be condensed to cover four terms of twelve weeks each and eleven hours of military instruction will be required.

8. Students who have already pursued the premedical course for one school year should concentrate on chemistry, physics and biology. In each case they should take work in these subjects to the extent needed to meet the present requirements for admission to medical schools in order that they may be prepared to enter on their professional study of medicine as soon as practicable. Second-year premedical students will have eleven hours of military instruction.

9. Those who pursue a course not approved as a premedical course (see sections 4 and 5) will not be regarded as premedical students, and their attention should be directed to General Circular C.a.4.

COMMITTEE ON EDUCATION AND SPECIAL TRAINING,
By R. C. Maclaurin,
Oct. 3, 1918. Educational Director, Collegiate Section.

## BRIGADIER-GENERAL MUNSON ASSIGNED TO THE GENERAL STAFF

Col. Edward L. Munson, for twenty-five years an officer of the Medical Corps of the Army, has just been promoted to the rank of brigadier-general, and with the promotion selected for duty on the general staff. The new commission is in the line of the Army. General Munson is the third medical officer of the Army to be given general officer's rank for duty outside the Medical Department of the Army, the previous appointees being Generals Ainsworth and Leonard Wood. General Munson has had extensive experience in administrative work, having organized and administered the training system in training camps of the Medical Department, later being placed in command of Camp Greenleaf. Under his direction the medical officers' training camp at Fort Riley was merged with Camp Greenleaf into the greatest training camp for medical men ever organized. General Munson is also known for his textbooks on military hygiene and the work of the medical department in war used as official textbooks by the War Department. As editor of the *Military Surgeon* and secretary of the Association of Military Surgeons he is personally known to many of the officers in the service. He has also devised several articles of equipment adopted by the War Department, notably the tropical service tent, and as president of a board, the present widely known army shoe. He has been twice gold medallist of the Military Service Institution and was twice appointed by the Philippine government as health officer for the Philippine Islands. Recently he submitted a plan to the War Department for the psychologic stimulation of troops in the promotion of fighting efficiency. This method was demonstrated while Colonel Munson was in charge at Camp Greenleaf and caused his selection as an officer of the general staff to carry out the extension of this system throughout the entire Army. General Munson is a native of New Haven, Conn., and a graduate of Yale University, from which he received the degrees of A.B., A.M. and M.D.

BRIGADIER-GENERAL EDWARD L. MUNSON

## COMMISSIONS ACCEPTED, MEDICAL CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, July 13, 20 and 27, August 3, 10, 17, 24 and 31, September 7, 14, 21 and 28, October 5 and 12.

*ALABAMA*

Cordova—Waldrop, A. M.
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Parish, C. E.
Selma—Cay, S. G.

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Pine Bluff—Brunson, A.

*CALIFORNIA*

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San Diego—Crabtree, E. H.

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New Haven—Welch, H. L.

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Norcross, A. C.

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Ochlocknee—Winchester, M. E.
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Staunton—Tynes, A. L.
Virgilina—Jordan, R. S.

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Shepherdstown—Bragonier, R. K.

*WISCONSIN*

Fennimore—Bailey, M. A.

*WYOMING*

Lusk—Hassed, W. H.

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## COMMISSIONS OFFERED AND ORDERS TO DUTY ON ACCEPTANCE

### Alabama

*To Camp Joseph E. Johnston, Fla.*, Lieuts. E. P. GREEN, Birmingham; W. T. STOKES, Ethelsville.

*To Camp McClellan, Ala.*, base hospital, Lieut. G. LOTTERHOS, Birmingham.

*To Fort McPherson, Ga.*, Capt. C. M. RUDULPH, Birmingham.

*To Fort Oglethorpe* for instruction, Capt. J. L. WOODSON, Oakman; Lieuts. A. C. GREEN, Birmingham; W. L. SHACKLEFORD, Cordo.

### Arkansas

*To Camp Beauregard, La.*, base hospital, for instruction, Capt. A. H. TRIBBLE, Hot Springs; Lieut. B. D. LUCK, Pine Bluff.

*To Camp Logan, Texas*, Lieut. J. C. GRAVES, Lockesburg.

*To Fort Oglethorpe* for instruction, Capt. E. L. WATSON, Newport; Lieut. A. G. HARRISON, Searcy.

*To Fort Riley* for instruction, Lieuts. M. V. RUSSELL, Hope; N. C. McCOWN, Palestine; C. M. BROOKS, Roland; R. B. CORNEY, Tucker.

### California

*To Camp Cody, N. M.*, Lieut. J. Y. BARTHOLOMEW, San Francisco.

*To Camp Custer, Mich.*, base hospital, Capt. J. B. WOODWORTH, Redlands.

*To Camp Fremont, Calif.*, base hospital, for instruction, Capts. T. M. CARTMELL, C. E. ZERFING, Los Angeles; Lieut. J. L. MUDD, Merced.

*To Camp Kearney, Calif.*, Capts. W. G. BEATTIE, Colma; E. E. ROBERTS, Sawtelle; Lieuts. A. McGUFFIN, Imperial; V. NELSON, Los Angeles; J. M. GARDNER, Lodi; C. E. VON GELDERN, Palo Alto; I. J. WATERMAN, Pasadena; L. F. WOOD, Jr., Point Loma; A. G. FOLTE, A. V. GUNTZ, M. E. O'NEIL, San Francisco. Base hospital, Capt. W. R. McNAIR, Los Angeles. Base hospital, for instruction, Capts. E. H. THOMPSON, Berkeley; W. W. MacKENZIE, Los Angeles; J. F. POHEIM, B. S. STEVENS, H. W. STIREWALT, San Francisco.

*To Camp Pike, Ark.*, base hospital, Capt. R. R. REA, E. B. SWEET, Los Angeles.

*To Camp Travis, Texas*, Capt. W. H. BENNETT, Los Angeles.

*To Fort Oglethorpe* for instruction, Capt. L. E. WILLSON, Fresno; Lieuts. J. F. SLAVICH, Oakland; A. O. HOLMES, Redlands.

*To Fort Riley* for instruction, Capt. U. S. ABBOTT, Richmond; Lieut. W. F. EDMONDS, Lemoore.

*To New Haven, Conn.*, Yale Army Laboratory School, for instruction, Capt. E. J. PICKARD, San Diego; Lieut. D. C. RAGLAND, Los Angeles.

*To report to the commanding general*, Western Department, Capt. J. A. RENN, Los Angeles.

*To San Francisco, Calif.*, Letterman General Hospital, Lieut. F. C. BISHOP, Los Angeles. Letterman General Hospital, for instruction, Lieut. F. H. COOKINGHAM, San Francisco.

### Colorado

*To Camp Pike, Ark.*, base hospital, Capt. R. W. MENDELSON, La Junta. Base hospital, for instruction, Lieut. R. R. TAYLOR, Pueblo.

*To Denver, Colo.*, Capt. E. L. TIMMONS, Colorado Springs.

*To Fort Riley* for instruction, Lieut. A. J. BENDER, Salida.

### Connecticut

*To Camp Greene, N. C.*, Capt. R. W. LOWE, Ridgefield.

*To Camp Holabird, Md.*, Major E. T. SMITH, Hartford.

*To Camp Meade, Md.*, base hospital, for instruction, Capt. T. S. McDERMOTT, New Haven.

*To Fort Oglethorpe* for instruction, Capt. A. SCRIMGEOUR, Bridgeport.

*To Mineola, N. Y.*, for instruction, Lieut. W. T. MORRISSEY, Unionville.

*To New Haven, Conn.*, Yale Army Laboratory School, Capt. D. M. LEWIS, New Haven.

*To Washington, D. C.*, St. Elizabeth's Hospital, Lieut. T. F. ERDMAN, Norwich.

### District of Columbia

*To Camp Sevier, S. C.*, Capt. H. H. STROMBERGER, Washington.

*To Fort Oglethorpe* for instruction, Lieut. R. COHEN, Washington.

*To New Haven, Conn.*, Yale Army Laboratory School, for instruction, Capt. G. F. WHITE, Washington.

*To Walter Reed General Hospital, D. C.*, Capt. L. B. T. JOHNSON, Washington.

### Florida

*To Camp Joseph E. Johnston, Fla.*, Lieut. N. C. BERRY, Jacksonville.

*To Camp Lee, Va.*, base hospital, Capt. H. M. TAYLOR, Jacksonville.

*To Camp Pike, Ark.*, base hospital, for instruction, Lieut. W. T. LANIER, Homestead.

*To New Haven, Conn.*, Yale Army Laboratory School, for instruction, Lieut. W. W. FARNELLL, Springdale.

### Georgia

*To Camp Greene, N. C.*, Lieut. H. L. JOHNSTON, Argyle.

*To Camp Jackson, S. C.*, base hospital, for instruction, Lieut. N. R. THOMAS, Milledgeville.

*To Camp Sevier, S. C.*, base hospital, Lieut. A. G. DuLOACH, Atlanta.

*To Fort Oglethorpe* for instruction, Capt. J. DAVIS, Toccoa; Lieuts. J. B. CAROTHERS, K. B. DOWD, Atlanta; R. J. PEARSON, Albany; W. H. CABANISS, Athens; W. CONN, Pomona.

### Idaho

*To Camp Fremont, Calif.*, base hospital, for instruction, Capt. S. B. DUDLEY, Weiser.
*To Fort Riley* for instruction, Lieut. M. S. FINK, Kuna.

### Illinois

*To Ann Arbor, Mich.*, State Psychopathic Hospital, Lieut. B. SMITH, Jacksonville.
*To Camp Custer, Mich.*, base hospital, for instruction, Lieut. F. P. THOMETZ, Chicago.
*To Camp Dodge, Iowa*, base hospital, for instruction, Lieut. J. A. BRAHAM, Chicago.
*To Camp Grant, Ill.*, base hospital, for instruction, Capts. L. G. VOIGT, Freeport; J. H. BRYANT, Galesburg; Lieut. H. W. VERNON, Chicago.
*To Camp MacArthur, Texas*, base hospital, for instruction, Lieut. J. RODGE, Apple River.
*To Camp McClellan, Ala.*, Lieut. C. C. HOLMAN, Effingham.
*To Camp Pike, Ark.*, base hospital, Lieut. G. R. McAULIFF, Chicago; base hospital, for instruction, Lieut. R. P. WILSON, Chicago.
*To Camp Shelby, Miss.*, base hospital, for instruction, Capt. J. A. KOCH, Quincy.
*To Camp Zachary Taylor, Ky.*, Lieut. L. M. BEILIN, Springfield.
Base hospital, Lieut. J. S. EISENSTAEDT, Chicago.
*To Fort Benjamin Harrison*, Capt. T. A. LAWLER, Taylorville.
*To Fort Des Moines, Iowa*, Lieut. E. V. EYMAN, Evanston.
*To Fort Oglethorpe* for instruction Capts. F. E. CULVER, J. STEFFENS, Chicago; H. M. ORR, LaSalle; J. K. RETICKER, Quincy; Lieuts. G. S. BETTS, Banner; G. D. ALLEN, A. I. EPSTEIN, O. L. KAHN, R. B. SARGINSON, S. SHER, S. SINKLER, B. F. TUBERGEN, Chicago; E. E. BULLARD, Girard; G. E. KNAPPENBERGER, Macomb; G. H. LANGUM, Newark; T. B. WILLIAMSON, Ogelsby; O. BALENSIEFER, Peru; C. H. HULICK, Shelbyville; G. W. ROSS, Watseka; J. A. CONNELL, Waukegan.
*To Fort Riley* for instruction, Capts. J. C. WEST, Batavia; S. KLEIN, Chicago; H. M. VORIS, East St. Louis; F. H. FLEEGE, Galena; J. G. BAKER, Metropon; Lieuts. M. BARBER, Barrington; W. H. ALVIS, Benton; E. C. WEBSTER, Bible Grove; W. J. BYLES, D. F. O'CONNOR, E. E. WILCOX, Chicago; H. P. MacNAMARA, Granite City; J. C. RUSSELL, Oakford; F. S. GAY, Rockport; F. B. MOORE, Shabbona; D. H. McCARTHY, C. W. MILLIGAN, Springfield.
*To Minecola, N. Y.*, Hazelhurst Field, for instruction, Capt. F. E. BRAWLEY, Chicago.
*To New Haven, Conn.*, Lieut. J. K. MEYERS, Chicago.
*To San Antonio, Texas*, Major J. C. BECK, Chicago.

### Indiana

*To Camp Grant, Ill.*, Lieut. B. M. GUNDELFINGER, Indianapolis.
*To Camp Lewis, Wash.*, base hospital, for instruction, Capt. C. A. BALLARD, Whiting.
*To Camp McClellan, Ala.*, Lieut. K. S. STRICKLAND, Owensville.
*To Camp Sherman, Ohio*, base hospital, Capt. W. D. ASBURY, Terre Haute.
*To Camp Wadsworth, S. C.*, Lieut. H. W. MacDONALD, New Castle.
*To Camp Zachary Taylor, Ky.*, Lieut. H. G. HAMER, Indianapolis.
Base hospital, Capt. W. E. TINNEY, Indianapolis; Lieut. J. G. POSTWICK, Mishawaka. For instruction, Capt. E. L. WIGGINS, Indianapolis.
*To Fort Oglethorpe* for instruction, Capts. R. M. TILTON, Columbus; A. G. SCHLIEKER, East Chicago; W. M. BIGGER, Hammond; B. HUTCHINGS, O. R. SPIGLER, Terre Haute; Lieuts. T. F. O'NEILL, Anderson; R. P. HALE, East Chicago; W. CRANE, Hayden; J. C. DANIEL, Indianapolis; S. E. DITTMER, Kouts; T. J. McKEAN, Linngrove; J. A. GIBBONS, Mitchell; R. A. ANDERSON, Vincennes.
*To Fort Riley* for instruction, Capts. T. J. TONER, Gary; H. G. WEISS, Rockport; Lieuts. W. K. ADAIR, Crothersville; D. E. JOHNS, East Chicago; J. A. SCUDDER, Edwardsport; W. H. COLEMAN, Evansville; E. A. PAPE, Indianapolis; C. R. BROWN, Marion; O. L. BELCHER, Monroe City; E. O. ASHER, New Augusta; W. D. LITTLE, Whiteriver.
*To Jefferson Barracks, Mo.*, Lieut. H. L. MAGENNIS, Indianapolis.

### Iowa

*To Camp Bowie, Texas*, base hospital, for instruction, Lieut. B. B. MILLER, Tabor.
*To Camp Dodge, Iowa*, base hospital, for instruction, Capt. J. E. SWANSON, Sioux City.
*To Camp Grant, Ill.*, for instruction, Capt. E. J. HARNAGEL, Des Moines.
*To Camp Pike, Ark.*, base hospital, for instruction, Capt. E. CHRISTY, Hastings.
*To Camp Shelby, Miss.*, base hospital, Lieut. C. WATKIN, Sioux City.
*To Camp Sheridan, Ala.*, base hospital, for instruction, Lieut. R. E. PARRY, Scranton.
*To Fort Oglethorpe* for instruction, Capts. W. H. SEYMOUR, Charles City; J. L. SCRIPTURE, Clarksville; H. E. MEYER, Hampton; Lieut. C. J. O'KEEFE, Marble Rock.
*To Fort Riley* for instruction, Capts. C. M. CAMPBELL, Decorah; W. S. CARPENTER, A. P. STONER, Des Moines; W. H. WORLEY, Nodaway; H. J. BRACKNEY, Sheldon; H. M. AUSTIN, Wellman; Lieuts. F. E. STRICKLING, Birmingham; T. McMAHON, Iowa City; T. H. CHESNUTT, Mount Pleasant.
*To Walter Reed General Hospital, D. C.*, Capt. J. M. KILBORNE, Sioux City.

### Kansas

*To Camp Dodge, Iowa*, base hospital, for instruction, Capt. C. A. PARKER, Maize.
*To Camp MacArthur, Texas*, base hospital, for instruction, Capt. W. C. CHANEY, Independence.
*To Camp Pike, Ark.*, base hospital, for instruction, Lieut. C. D. MILLS, Freeport.
*To Fort Oglethorpe* for instruction Capt. J. T. REID, Iola; Lieuts. P. A. LOYD, Culver; D. L. MORGAN, Emporia; A. R. HATCHER, Wellington.
*To Fort Riley* for instruction, Capts. T. E. SMITH, Independence; R. W. JAMES, Winfield; Lieuts. H. L. GALLOWAY, Anthony; E. D. TANQUARY, Bronson; R. ALGIE, Linn; O. W. N. AUSTIN, Mayette; H. M. BENTLEY, Sterling; G. R. LITTLE, Wichita.

### Kentucky

*To Camp Beauregard, La.*, Lieut. T. C. PIERSON, Fort Thomas.
*To Camp Dodge, Iowa*, Lieut. W. T. BRIGGS, Lexington.
*To Camp Greene, N. C.*, Lieut. J. H. JEFFRIES, Union City.
*To Camp Hancock, Ga.*, base hospital, for instruction, Lieut. J. W. YORK, Lucas.
*To Camp Meade, Md.*, Lieuts. E. D. BURNETT, Anchorage; F. EDWARDS, Horse Cave.
*To Camp Pike, Ark.*, base hospital, for instruction, Lieut. A. H. FALCONER, Louisville.
*To Camp Sevier, S. C.*, Capt. P. G. KEENEY, Bellevue; Lieuts. L. J. SPICKARD, Fredonia; L. RUDOLPH, Kevil; J. B. LUKINS, Louisville; O. F. SHEWMAKER, Waddy.
*To Camp Zachary Taylor, Ky.*, Lieuts. F. H. BUSSEY, H. M. LIMBACH, Louisville.
*To Fort Oglethorpe* for instruction, Capts. F. M. GAINES, Carrollton; R. T. ANDERSON, R. G. E. HAYMOND, I. T. HOUCK, Louisville; F. P. STROTHER, Madisonville; C. D. O'HARA, Williamstown; Lieuts. S. B. NUNNELLEY, Bulletsville; E. CRAIG, Colesburg; C. J. HARRIS, Covington; J. F. PENNINGTON, Ford; B. I. PAUL, Fort Thomas; W. J. SHELTON, Hickory; A. C. WILLMOTT, Hutchison; J. E. H. WILLIS, Lexington; H. G. PETRIE, E. C. REDMON, Louisville; E. SWETNAM, Paris; C. R. COMBS, Perry; R. M. PHELPS, Red House; J. F. GLASSCOCK, Sonora; R. M. FILIATREAU, Sorgbo; S. MULLINS, Wingo.
*To Fort Riley* for instruction, Major G. C. LEACHMAN, Louisville; Capt. C. O. NEFF, Louisville; Lieuts. H. D. NEWMAN, Drakesboro; R. P. CRAWFORD, Hazel; W. H. ROSENFIELD, Louisville; O. F. HUME, Mackville; O. C. HENRY, Minerva.
*To report to the commanding general*, Southeastern Department, Capt. M. McDOWELL, Cynthiana.

### Louisiana

*To Camp Beauregard, La.*, Lieut. B. A. NORMAN, Minden.
*To Camp Shelby, Miss.*, base hospital, for instruction, Capt. A. B. NELSON, Lake Providence.
*To Fort Oglethorpe* for instruction, Capt. W. H. AIKEN, New Orleans; Lieuts. J. M. OGLESBY, Alexandria; E. F. SALERNO, New Orleans; W. F. BROOKS, Vinton.

### Maine

*To Camp Devens, Mass.*, base hospital, Capt. M. C. WEBBER, Portland.
*To Camp Dix, N. J.*, base hospital, Capt. J. E. GRAY, Portland.
*To Fort Oglethorpe* for instruction, Capt. L. L. HILLS, Westbrook; Lieut. L. J. DUMONT, Lewiston.
*To Fort Riley* for instruction, Capt. I. E. MABRY, Bridgeton.

### Maryland

*To Camp Jackson, S. C.*, Lieut. R. R. DILLER, Detour.
*To Camp Meade, Md.*, base hospital, for instruction, Capt. C. W. VEST, Baltimore.
*To Camp Sevier, S. C.*, base hospital, for instruction, Capt. E. H. TRETER, Baltimore.
*To Camp Shelby, Miss.*, base hospital, Lieut. E. V. COOLAHAN, Baltimore.
*To Camp Wadsworth, S. C.*, base hospital, Lieut. M. L. DILLON, Baltimore.
*To Fort Oglethorpe* for instruction, Lieuts. O. S. LLOYD, W. D. WISE, Baltimore; H. B. McDONNELL, College Park.

### Massachusetts

*To Camp Devens, Mass.*, Capts. A. E. JOSLYN, Lynn; C. J. MUYCK, West Brookfield; Lieuts. J. MONAHAN, Boston; J. F. KRASNYE, Lowell. Base hospital, Capt. W. J. LEONARD, Springfield.
*To Camp Gordon, Ga.*, base hospital, Capt. G. DALTON, Springfield.
*To Camp Meade, Md.*, base hospital, Lieut. L. LAZARUS, Worcester.
*To Camp Sevier, S. C.*, Lieut. R. O. DODGE, Hyde Park.
*To Camp Sheridan, Ala.*, base hospital, for instruction, Capt. T. E. CAULFIELD, Woburn.
*To Fort Oglethorpe* for instruction, Capts. J. L. BACON, Southboro; W. A. HOSLEY, H. PECK, Springfield; Lieuts. T. O. WHITMAN, Amherst; J. E. AGNEW, Chicopee; T. R. DONOVAN, Fitchburg; I. H. FARR, Holyoke; J. E. TELLIER, North Attelboro; T. F. HENRY, Salem; R. W. SHEEHY, Winchester; L. H. POTE, Winter Hill.
*To Minecola, N. Y.*, for instruction, Lieut. P. J. D. HALEY, Medford.
*To New Haven, Conn.*, Capt. J. M. KELLY, Boston.
*To Newport News, Va.*, Lieut. A. GRASSO, Springfield.

### Michigan

*To Ann Arbor, Mich.*, State Psychopathic Hospital, Capt. F. S. BACHELDER, Pontiac.
*To Camp Custer, Mich.*, base hospital, for instruction, Lieut. C. E. VREELAND, Detroit.
*To Camp Dodge, Iowa*, Capt. S. A. BUTLER, Pontiac.
*To Camp Grant, Ill.*, Lieut. G. C. HARDY, Detroit.
*To Camp McClellan, Ala.*, base hospital, Lieut. R. G. JAMES, Detroit.
*To Fort Oglethorpe* for instruction, Capts. B. D. PARKER, Detroit; A. J. REYNOLDS, Flint; A. LEENHOUTS Holland; G. M. JOHNSON, Traverse City; Lieuts. A. H. PEARSON, Ann Arbor; J. W. HOVERTER, Evart; H. S. CARR, Niles.
*To Fort Riley* for instruction, Capt. H. A. SHAFOR, Detroit; Lieuts. S. STAMPA, Flint; C. W. ELLIS, Lansing; W. M. TAYLOR, Ovid.
*To New Haven, Conn.*, Capt. A. M. WEHENKEL, Detroit.

### Minnesota

*To Camp Grant, Ill.*, base hospital, for instruction, Lieuts. L. A. BARNEY, Duluth; F. E. HUFNAIL, Minneapolis; C. H. ZANDER, St. Paul.
*To Camp Meade, Md.*, Capt. H. O. HAGEN, New Richland.
*To Camp Wheeler, Ga.*, base hospital, Lieut. G. C. DITTMAN, St. Paul.
*To Denver, Colo.*, Capt. E. B. DAUGHERTY, St. Paul.
*To Fort Des Moines, Iowa*, Lieut. H. W. COVEY, St. Peter.

*To Fort Oglethorpe* for instruction, Capts. C. L. HANEY, Duluth; O. M. URSTAD, Kiester; B. W. PARROTT, Long Prairie; E. A. KING, F. F. WINSELL, Minneapolis; G. L. GOSSLEE, Moorhead; Lieuts. C. R. SANBORN, Benridge; D. F. NOONAN, Minneapolis; P. McDOWELL, St. Cloud; C. G. PERRY, St. Paul; H. G. BLANCHARD, Waseca.

*To Fort Riley* for instruction, Capts. L. M. BOYD, Alexandria; H. L. ARZT, Jackson; Lieuts. L. M. LOWE, Glyndon; C. S. RAADQUIST, Hibbing; N. E. ATKINSON, Jordan; W. A. PIPER, Mountain Lake; B. A. DOGGETT, Rochester; R. A. BOCK, St. Paul; W. HUMPHREY, Stillwater.

*To Lincoln, N. Y.*, Hazelhurst Field, for instruction, Lieut. A. L. KUSSKE, Minneapolis.

### Mississippi

*To Camp Beauregard, La.*, Lieut. R. A. HAGGARD, Meriqold.
*To Camp Joseph E. Johnston, Fla.*, Lieut. J. C. WALKER, Houlka.
*To Camp Logan, Texas*, Lieut. J. J. DANNER, Pace.
*To Fort Oglethorpe* for instruction, Capt. C. M. DAVIS, Laurel; Lieuts. C. C. HIGHTOWER, Hattiesburg; J. C. WHITE, Jr., Hazelhurst; T. E. ROYALS, Meridian.

### Missouri

*To Camp Dodge, Iowa*, Capts. J. M. BRADLEY, L. S. LUTON, St. Louis. Base hospital, Capt. H. D. HAMILTON, Kansas City. Base hospital, for instruction, Lieuts. T. E. LILLY, Kansas City.
*To Camp Gordon, Ga.*, base hospital, for instruction, Lieut. C. A. POTTER, St. Joseph.
*To Camp Logan, Texas*, base hospital, for instruction, Lieut. W. W. FORD, Gordonville.
*To Camp Pike, Ark.*, base hospital, Lieut. W. L. ALLEE, Eldon. Base hospital, for instruction, Lieut. C. L. CONRAD, Pleasant Hill.
*To Fort Oglethorpe* for instruction, Capts. E. P. HAMILTON, Kansas City; E. M. ROSEBERRY, Neosho; J. D. JAMES, Springfield; R. KRING, B. F. TATE, St. Louis; Lieuts. S. A. RUSSELL, Fairview; C. P. CARTWRIGHT, Hughesville; W. M. SAMS, Kansas City; O. M. KOENIG, St. Louis.
*To Fort Riley* for instruction, Capts. S. T. BROWNFIELD, Brookfield; F. L. DOD, J. M. WALKER, Kansas City; A. J. CHALKLEY, Lexington; G. C. TRAWICK, St. Louis; Lieuts. S. E. MELUNEY, Agency; J. B. BIRD, D. R. RUSSELL, Kansas City; G. H. KOENIG, St. Louis; J. L. EDMONDSON, Stella; W. S. CLARENBACH, Wright City.
*To Lincoln, N. Y.*, for instruction, Lieut. O. E. MEGEE, Moberly.

### Montana

*To Fort Riley* for instruction, Lieuts. J. H. GRAHAM, Billings; J. B. SULLIVAN, Butte.

### Nebraska

*To Camp Jackson, S. C.*, base hospital, for instruction, Capt. C. H. NEWELL, Omaha.
*To Camp Pike, Ark.*, base hospital, for instruction, Lieut. C. EMERSON, Lincoln.
*To Camp Travis, Texas*, base hospital, for instruction, Capt. F. E NAIL, Riverton.
*To Fort Riley*, Capt. L. D. PILLSBURY, Lincoln; Lieut. A. N. B. LEMOINE, Nelson. For instruction, Capts. H. A. COPSEY, Alliance; R. G. RICH, David City; T. J. KERR, North Platte; Lieuts. G. C. WINTERSON, Omaha; J. C. NEWMAN, Wallace.
*To San Antonio, Texas*, Lieut. S. O. PITTS, Alda.

### New Hampshire

*To Camp Devens, Mass.*, base hospital, for instruction, Lieut. E. L. CHAPMAN, Dover.
*To Camp Hancock, Ga.*, base hospital, Capt. N. B. WEBBER, Manchester.
*To Fort Oglethorpe* for instruction, Capts. D. M. SHEA, Nashua; B. W. CARR, Pittsfield.

### New Jersey

*To Camp Devens, Mass.*, base hospital, Capt. W. J. DUCKETT, Jersey City. Base hospital, for instruction, Capt. E. L. WEST, Trenton.
*To Camp Dix, N. J.*, base hospital, Capt. J. COOK, Bayonne.
*To Camp Gordon, Ga.*, to examine the command for nervous and mental diseases, Capt. F. M. FISHER, Greystone Park.
*To Camp Lee, Va.*, Lieuts. G. W. DISBROW, Newark; A. E. OLPP, West Hoboken. Base hospital, for instruction, Capt. J. H. ORAM, Paterson. For instruction, Capt. W. D. MININGHAM, Newark.
*To Camp Meade, Md.*, Capt. E. B. CLEMENT, Atlantic City; Lieut. W. A. TAYLOR, Trenton. Base hospital, for instruction, Capt. C. A. KEATING, Jr., Paterson.
*To Camp Zachary Taylor, Ky.*, base hospital, Lieut. P. LIVINGSTON, East Orange.
*To Fort Oglethorpe* for instruction, Lieuts. R. J. McDONALD, Butler; G. T. LONBOTHUM, Dunellen; C. F. MERRILL, Highland Park; D. L. RUSSELL, Jersey City; R. STINSON, Paterson; C. S. MILLS, Riverton; R. D. CLIPPINGER, Vineland; I. L. ALLEN, J. M. STEIN, West Hoboken.
*To New York*, Cornell Medical College, for instruction in roentgenology, Capt. L. A. DENIS, West Hoboken.
*To report to the commanding general*, Southeastern Department, Capt. E. W. LANDES, Stillwater.
*To Washington, D. C.*, St. Elizabeth's Hospital, Capts. G. PAYNE, Cedar Grove; F. C. HORSFORD, Newark

### New Mexico

*To Camp Cody, N. M.*, base hospital, for instruction, Lieut. A. A. DEARDUFF, Lovington.

### New York

*To Camp A. A. Humphreys*, Capt. H. B. REECE, New York; Lieuts. F. A. M. BRYANT, Mount Vernon; G. M. BRANDT, Seneca Falls.
*To Camp Beauregard, La.*, base hospital, Capt. R. W. GROVER, New York.
*To Camp Bowie, Texas*, base hospital, Lieut. L. GREENBERG, Brooklyn.
*To Camp Devens, Mass.*, base hospital, for instruction, Capts. F. A. MENDLEIN, Buffalo; C. R. MARSH, Oneonta.
*To Camp Dix, N. J.*, Lieut. S. MALISOFF, New York. Base hospital, Capt. B. W. BIERBAUER; Lieut. T. F. TRUMPP, Brooklyn.
*To Camp Gordon, Ga.*, base hospital, Capt. S. S. HAM, Schenectady.
*To Camp Holabird, Md.*, Lieut. F. BARBER, Rochester.
*To Camp Jackson, S. C.*, base hospital, Major F. H. BARTLETT, New York.
*To Camp Joseph E. Johnston, Fla.*, Lieut. T. A. BRADY, Central Islip.
*To Camp Lee, Va.*, Lieuts. A. S. DEDERICK, Brooklyn; A. REGAN, Buffalo; F. M. CARPENTER, Rochester.
*To Camp Meade, Md.*, Lieut. N. A. GOLDSTEIN, Brooklyn; R. E. KNAPP, New York; A. M. BREAULT, Schenectady. Base hospital, Capts. L. P. BERNSTEIN, New York. Base hospital, for instruction, Capt. W. H. HANSPERGER, Buffalo; Lieut. J. F. BEIERMEISTER, Rochester.
*To Camp Sevier, S. C.*, Lieuts. F. G. CAROW, Brooklyn; H. C. SCHUHR, Buffalo; E. A. JENNINGS, New York; E. V. LAURENCE, Rochester. Base hospital, Lieut. L. N. ANDRES, New York.
*To Camp Sherman, O.*, base hospital, Lieut. J. C. G. REGAN, Jamaica.
*To Camp Upton, N. Y.*, base hospital, for instruction, Capt. W. J. BOTT, Buffalo.
*To Camp Wheeler, Ga.*, base hospital, for instruction, Capt. C. M. NIESLEY, Manhasset.
*To Camp Zachary Taylor, Ky.*, base hospital, for instruction, Lieut. E. J. WENDEL, Rochester.
*To Colonia, N. J.*, Lieut. C. S. BOYD, New York.
*To Fort Oglethorpe*, for instruction, Capts. H. VAN RENSSELAER, Albany; L. C. AGER, Brooklyn; E. H. VAIL, Churchville; J. R. GRANT, Cincinnatus; E. J. PHILLIPS, Corfu; A. H. RODGERS, Corning; J. L. KLEIN, East Aurora; H. C. POTTER, East Rochester; J. J. COLLIN, Geneva; E. C. CHAMBERLIN, I. S. HIRSCH, J. O'DWYER, New York; A. M. JOHNSON, G. C. WHITNEY, Rochester; G. P. PAUL, Round Lake; C. G. RANSON, Schenectady; Lieuts. O. E. WHITE, Akron; J. A. KNELLER, Attica; W. LEHRICH, Churchville; C. C. PLACK, Brooklyn; E. N. DeDOMINICIS, J. HELLER, A. W. PALMER, Buffalo; M. A. LOSEE, Livingstonville; H. A. BASSETT, Louville; B. CLERY, A. FINE, L. HAUSMAN, B. QUEL, L. SASOVER, W. A. WOVSCHIN, New York; L. S. LANG, Oneonta; J. C. FLYNN, A. R. HURLEY, R. B. PARTRIDGE, W. WOLFF, Rochester; C. GARDINIER, Schenectady; C. G. LENHART, Spencerport; D. P. MacGUIRE, Staten Island; J. O. SIBBALD, Troy; R. A. ADAMS, Whitestone.
*To Greenville, S. C.*, base hospital, for instruction, Capt. C. C. SICHEL, New York.
*To Lincoln, N. Y.*, Hazelhurst Field, for instruction, Capt. J. M. WHEELER, New York.
*To New Haven, Conn.*, Capts. J. GOLDEY, L. KARMIOHL, New York; Lieuts. M. F. FORSTLER, Brooklyn. *Yale Army Laboratory School*, Lieut. F. GUSMAN, Brooklyn.
*To Newport News, Va.*, Capt. B. G. McKILLOP, Gloversville.
*To New York*, Manhattan Eye and Ear Hospital, Capt. J. D. RICHARDS, New York. Neurological Institute, for instruction, M. R. WATERMAN, Brockport.
*To Plattsburg Barracks, N. Y.*, Capt. C. A. ROSEWATER; Lieut. H. L. DAY, New York.
*To Richmond, Va.*, Capt. H. R. LOHNES, Buffalo.
*To Rockefeller Institute*, Capt. A. L. MEYER, New York.
*To Washington, D. C.*, St. Elizabeth's Hospital, Lieut. E. A. EVERETT, Middleton.

### North Carolina

*To Camp Greene, N. C.*, base hospital, for instruction, Lieut. L. O. GIBSON, Statesville.
*To Camp Sevier, S. C.*, Lieuts. N. S. STIREWALT, Greensboro; H. B. BEST, Wilson.

### North Dakota

*To Camp Beauregard, La.*, base hospital, for instruction, Capt. M. W. ROAN, Bismarck.
*To Fort Oglethorpe* for instruction, Capt. F. W. MacMANUS, Williston.
*To Fort Riley* for instruction, Capt. W. H. MOORE, Harvey; Lieut. L. R. CRITCHFIELD, Kenmare.

### Ohio

*To Ann Arbor, Mich.*, State Psychopathic Hospital, Capt. W. F. MAXWELL; Lieut. W. G. TAFT, Toledo.
*To Camp Abraham Eustis, Va.*, Lieut. V. I. ALLEN, Creston.
*To Camp Custer, Mich.*, Capt. S. S. TUTTLE, Van Wert.
*To Camp Grant, Ill.*, Lieut. J. H. WILMS, Cincinnati. Base hospital, Capt. W. A. MOLIN, Cleveland.
*To Camp Greene, N. C.*, Lieut. J. A. HUNTER, Cleveland.
*To Camp Holabird, Md.*, Capt. L. A. BUCHMAN, Canton; Lieuts. B. E. MILLER, Akron; R. A. ELLIOT, Alyer.
*To Camp Jackson, S. C.*, Capt. J. PHILLIPS, Cleveland.
*To Camp Meade, Md.*, Capt. F. P. KREIDER, Van Wert; Lieut. W. F. JAMISON, Cleveland.
*To Camp Pike, Ark.*, base hospital, Capts. W. D. WISE, Akron; A. F. FURRER, Cleveland. Base hospital, for instruction, Lieuts. R. L. KUNKEL, Piqua; O. R. KACKLEY, Pleasant City.
*To Camp Sevier, S. C.*, base hospital, for instruction, Lieut. T. A. COSTELLO, Cleveland.
*To Camp Shelby, Miss.*, base hospital, Capt. J. J. LASALLE, Toledo; Lieut. J. T. KENNEDY, Cincinnati.
*To Camp Sherman, Ohio*, Capt. R. K. UPDEGRAFF, Cleveland; Lieut. J. E. HULBERT, Dayton. Base hospital, Capts. A. L. STEINFELD, Toledo. Base hospital, for instruction, Capts. J. E. TRESSEL, Alliance; C. D. HAUSER, Youngstown.
*To Camp Wadsworth, S. C.*, base hospital, for instruction, Capt. H. C. CRUMRINE, Cleveland.
*To Camp Zachary Taylor, Ky.*, Major J. PRICE, Columbus; Capt. D. O. SHEPPARD, Barnesville; Lieuts. C. S. ANDREWS, Cleveland; J. O. WELCH, Columbus; S. ATCHISON, East Palestine. Base hospital, Capts. J. GURLEY, Cleveland; L. A. WILLOUGHBY, Toledo; Lieut. F. C. TITUS, Toledo. Base hospital, for instruction, Capts. P. F. KING, Alliance; E. KLAUS, Cleveland; Lieut. P. L. RING, Bellaire.
*To Fort Oglethorpe*, for instruction, Capts. O. W. LOFFER, Degraff; G. D. NICHOLAS, Jr., Elyria; H. L. BURDSALL, A. L. SMEDLEY, Hamilton; W. D. HICKEY, Leipsic; J. W. McMURRAY, Marion; S. A. EDWARDS, Middlepoint; C. S. CAMPBELL, Wauseon; Lieuts. J. C. JOHNSON, Ashley; W. STEPHENS, Barnesville; W. G. JACOBS, F. E. KRAMER, A. PFEIFFER, Cincinnati; W. E. ALLYN, E. C. GARVIN, C. H. KOCINSKI, F. B. ROSINOKI, Cleveland; J. W. BROBST, Columbus; E. T. HURLEY, Conneaut; G. T. BROWN,

W. ROEHM, Dayton; E. J. BURNETT, Fostoria; E. G. HOLLIDAY, Lore City; L. T. ARTHUR, Montezuma; H. A. CROSSETT, Rossford; U. A. COOKE, Sylvania; L. D. NELSON, The Plains; S. B. ANDREWS, J. B. METZGER, E. F. WARD, Toledo; W. L. JONES, J. M. RANZ, Youngstown.

*To Fort Riley* for instruction, Lieut. J. K. LARKIN, Dayton.

*To New Haven, Conn.*, Lieut. R. R. RICHISON, Springfield, Yale Army Laboratory School for instruction, Lieut. C. SAYER, Cincinnati.

*To Newport News, Va.*, Lieut. N. V. NOBLE, St. Marys.

*To Walter Reed General Hospital, D. C.*, Capt. C. L. IRELAND, Columbus.

### Oklahoma

*To Camp John Wise, Texas*, Lieut. W. B. SMITH, Fairland.

*To Camp Kelly, Texas*, Capt. C. E. DeGROOT, Muskogee.

*To Camp Logan, Texas*, Capts. J. P. COWMAN, Comanche; H. W. B. McKINNEY, Durant; G. S. WEEVER, Enid; G. R. ECKLES, Holdenville; Lieuts. W. H. VANN, Cement; E. A. LEISURE, Fairland; V. V. GRANT, Miami; R. A. FELT, Tulsa. Base hospital, Lieut. G. M. HOLCOMBE, Edmond.

*To Camp Travis, Texas*, base hospital, Capt. R. O. EARLY, Ardmore.

*To Camp Zachary Taylor, Ky.*, base hospital, Lieut. H. H. WHITE, Hugo.

*To Fort Logan H. Roots, Ark.*, base hospital, Lieut. R. V. VON CANNON, Miami.

*To Fort Oglethorpe* for instruction, Capts. K. R. RONE, Elk City; D. A. MYERS, Lawton; J. C. JACOBS, Miami; Lieut. L. HUGHES, Collinsville.

*To Fort Riley* for instruction, Lieut. T. F. LAIDIG, Drumright.

### Oregon

*To Camp Lewis, Wash.*, base hospital, Capt. R. J. CONROY, Medford; Lieut. L. O. CLEMENT, Grante Pass. Base hospital for instruction, Lieut R. C. McDANIEL, Portland.

*To Fort Oglethorpe* for instruction, Capt. C. E. HILL, Portland.

### Pennsylvania

*To Baltimore, Md.*, Johns Hopkins Medical School, Capt. C. E. ESSICK, Reading.

*To Camp A. A. Humphreys, Va.*, Lieuts. H. C. BROWN, Lancaster; J. A. BUCKWALTER, Royersford.

*To Camp Devens, Mass.*, base hospital, Capt. H. WHITE, Sharon.

*To Camp Dix, N. J.*, Lieut. B. P. BISCOE, Philadelphia.

*To Camp Greene, N. C.*, Capt. C. E. PRICE, Philadelphia; Lieut. B. L. STOLLAR, Fayette City. Base hospital, for instruction, Capt. W. B. McKENNA, Pittsburgh.

*To Camp Holabird, Md.*, Capt. C. M. WOODBURN, Towanda.

*To Camp Jackson*, Lieut. W. A. CAVE, Pittsburgh. Base hospital, Capt. G. C. KNEEDLER, Pittsburgh. Base hospital, for instruction, Capt. W. ANDERSON, Pittsburgh.

*To Camp Kearney, Calif.*, base hospital, for instruction, Capt. F. T. BUDD, Scranton.

*To Camp Lee, Va.*, base hospital, Lieut. A. A. PETERSON, Elizabeth. Base hospital, for instruction, Capt. G. A. VANLENNEP, Philadelphia.

*To Camp Meade, Md.*, Capts. D. M. MYERS, Lancaster; H. M. FINK, Pittsburgh; Lieuts. F. A. MURPHY, Doylestown; M. W. COX, Kane; H. L. BATES, Philadelphia. Base hospital, Capt. R. S. FREED, Pittsburgh. Base hospital, for instruction, Lieuts. H. S. BALLARD, McKeesport; L. L. HUNTER, Midland; W. L. SHEARER, Reading; A. T. WALSH, Scranton.

*To Camp Sevier, S. C.*, Capt. B. B. WORMSER, Scranton; Lieut. M. WIANT, Pittsburgh.

*To Camp Wadsworth, S. C.*, base hospital, for instruction, Capt. C. C. MARSHALL, Sharon.

*To Camp Wheeler, Ga.*, base hospital, for instruction, Capt. C. B. NOECKER, Scranton.

*To Camp Zachary Taylor, Ky.*, Capt. I. D. METZGER, Pittsburgh. Base hospital, Capts. J. C. MARKEL, H. H. TURNER, Pittsburgh.

*To Colonia, N. J., Capt.* J. A. BOALE, Vendergrift.

*To Fort Oglethorpe* for instruction, Capts. H. D. JORDAN, Allentown; L. T. MITCHELL, Aspinwall; C. M. COON, Athens; L. C. FAUSOLD, Glenshaw; A. B. KAUFFMAN, Lancaster; M. G. YEAGER, Mercer; T. MATLACK, Philadelphia; J. H. CARY, Prosperity; Lieuts. J. C. KELSO, Canonsburg; T. H. GILLAND, Greencastle; C. E. RINK, Indiana; P. R. DEEMAR, Manorville; J. G. WARNER, Monongahela; J. M. CONWAY, Pittsburgh; S. J. SONDHEIM, Reading; L. G. REDDING, Scranton; S. B. GEISE, Susbury; J. M. HESS, Tylersburg; W. F. WHITE, Wellsboro.

*To Fort Riley* for instruction, Lieut. S. A. QUINN, Allentown.

*To New Haven, Conn.*, Yale Army Laboratory School for instruction, Lieut. G. D. HEIST, Philadelphia.

*To Newport News, Va.*, Lieuts. J. M. WEAVER, Allentown; J. C. KIBLER, Corry; S. S. CARRIER, D. L. SIMON, Pittsburgh.

*To Richmond, Va.* Capts. J. G. ALTER, New Kensington; F. KENWORTHY, Pittsburgh.

*To Rockefeller Institute* for instruction in special chemical methods, Lieut. J. ROSENBLOOM, Pittsburgh.

*To Washington, D. C.*, Major G. P. MULLER, Philadelphia; St. Elizabeth's Hospital, Lieuts. J. M. GRIST, Chester; R. NEBINGER, Danville; I. J. ISRAEL, Monessen.

### Porto Rico

*To Camp Las Casas, P. R.*, Capt. J. M. RODRIGUEZ, Barranquitas; Lieut. J. R. GONZALES, San Juan. Base hospital, for instruction, Lieut. W. R. WATSON, San Juan.

### Rhode Island

*To Camp Devens, Mass.*, base hospital, for instruction, Lieut. J. J. KENNEY, Providence.

*To Camp Meade, Md.*, Lieut. W. S. STREKER. Base hospital, for instruction, Lieut. E. S. CAMERON, Providence.

*To Fort Oglethorpe* for instruction, Capt. R. C. ROBINSON, Providence.

*To Richmond, Va.*, Capt. F. P. CONWAY, Newport.

### South Carolina

*To Fort Oglethorpe* for instruction, Lieuts. J. E. PRESSLEY, Abbeville; I. J. CAMPBELL, Clover; N. T. CLARK, Spartanburg.

*To New Haven, Conn.*, Lieut. N. B. HEYWARD, Columbia.

### South Dakota

*To Camp Dodge, Iowa*, base hospital, Capt. C. A. BUTLER, Dell Rapids. Base hospital, for instruction, Capt. W. O. LEACH, Huron.

*To Fort Des Moines, Iowa*, Capt. F. V. WILLHITE, Yankton.

*To Fort Oglethorpe* for instruction, Lieut. O. B. SHEETS, Carthage.

*To Fort Riley* for instruction, Capt. P. R. BURKLAND, Vermillion.

### Tennessee

*To Camp Gordon, Ga.*, base hospital, for instruction, Capt. R. L. SANDERS, Memphis.

*To Camp McClellan, Ala.*, Lieut. W. P. SUMNERS, Harms.

*To Fort Benjamin Harrison, Ind.*, base hospital, Capt. G. R. LIVERMORE, Memphis.

*To Fort Oglethorpe* for instruction, Capts. L. A. HAUN, Knoxville; H. L. ALEXANDER, McKenzie; E. D. MITCHELL, Memphis; Lieuts. S. E. McDONALD, Bells; A. G. HAYES, Coldwater; T. D. CLOVD, Mosheim.

### Texas

*To Camp Bowie, Texas*, base hospital, Lieut. G. T. BLACKWELL, Gorman.

*To Camp Fremont, Calif.*, base hospital, Capt. W. D. JONES, Dallas.

*To Camp Logan, Texas*, Capt. L. G. WITHERSPOON, El Paso; Lieuts. N. R. JACKSON, Manor; R. M. MUNROE, Richmond; E. G. LYONS, Sachse. Base hospital, Lieut. N. LONG, San Antonio.

*To Camp MacArthur, Texas*, Capt. A. M. SPURGIN, Dallas. Base hospital, for instruction, Lieuts. A. W. NASH, Dallas; J. H. HOLT, Sherman.

*To Fort Oglethorpe* for instruction, Capt. H. HORNEY, San Angelo; Lieuts. L. V. DAWSON, Plainview; H. T. COULTER, Rockdale; T. E. COOK, Temple.

*To Fort Riley* for instruction, Capt. E. A. DAVIS, Mineral Wells; Lieuts. G. T. HALL, Big Spring; H. D. ROACH, Bogata; E. D. STRONG, El Paso; L. K. BECK, San Antonio; E. STIRLING, Sulphur Springs.

*To Newport News, Va.*, Capt. J. B. LEGNARD, Ja., Houston.

*To San Antonio, Texas*, Capt. C. F. HAYES, Fort Worth; Lieut W. W. BLANKENSHIP, Mosheim.

### Utah

*To Camp Cody, N. M.*, base hospital, for instruction, Capt. C. R. OPENSHAW, Salt Lake City; Lieut. E. R. MURPHY, Clear Creek.

*To Fort Riley* for instruction, Lieut. J. C. HARDLE, Garland.

### Vermont

*To Camp Devens, Mass.*, base hospital, for instruction, Lieut. H. B. WILSON, White River Junction.

*To Fort Oglethorpe* for instruction, Lieut. F. E. STEELE, Ja., Waterbury.

### Virginia

*To Camp Greene, N. C.*, Lieut. N. A. NICHOLSON, Back Bay.

*To Camp Jackson, S. C.*, Lieut. J. H. BELL, Bridgewater.

*To Camp Lee, Va.*, Lieuts. G. W. JOHNSON, Danville; J. A. STRICKLAND, Norfolk.

*To Camp Meade, Md.*, Lieut. L. S. EARLY, Petersburg.

*To Fort Moultrie, S. C.*, Lieut. R. W. SELBY, Burgess Store.

*To Fort Oglethorpe* for instruction, Capt. A. C. LANCASTER, Fayetteville; Lieut. K. W. HOWARD, University.

*To New Haven, Conn.*, Lieut. N. J. GOULD, Norfolk.

*To Newport News, Va.*, Capt. W. N. BRECKINRIDGE, Fincastle; Lieut. O. L. WATKINS, Rustburg.

### Washington

*To Camp Kearney, Calif.*, Capt. J. H. FITZ, Montesano; Lieuts. F. C. HOLGATE, Almira; W. W. DAY, Dayton; C. B. JONES, Everett. Base hospital, for instruction, Lieut. E. J. RHOADES, Pomeroy.

*To Camp Lewis, Wash.*, Capt. N. H. YOUNG, Fort Steilacoom; Lieut. E. NICHOLSON, Seattle. Base hospital, Lieuts. C. H. WEIR, North Yakima; P. J. MAHONE, Seattle. Base hospital, for instruction, Capts. S. D. COFFIN, H. D. DUDLEY, L. W. RENFRO, Seattle.

*To Fort Riley*, Lieut. A. H. WINKEL, Kittitas. For instruction, Capt. W. M. BROWN, North Yakima.

*To San Francisco, Calif.*, Lieut. P. P. CRIMMINS, Seattle.

### West Virginia

*To Camp Beauregard, La.*, base hospital, for instruction, Lieut. R. U. DRINKARD, Wheeling.

*To Camp Meade, Md.*, Lieuts. J. M. BARR, Middleton; T. W. KEITH, Selbyville.

*To Camp Wadsworth, S. C.*, base hospital, Capt. M. B. KELLY, Wheeling.

*To Fort Oglethorpe* for instruction, Capts. B. KEIFER, Paden City; E. W. GUILFORD, Summerville; Lieut. G. WYATT, White Sulphur Springs.

*To Hot Springs, N. C.*, Capt. H. G. TONKIN, Martinsburg.

### Wisconsin

*To Camp Custer, Mich.*, base hospital, for instruction, Lieuts. H. F. BERGE, Eau Claire; L. E. BERINGER, Plymouth; F. NEE, Spring Green.

*To Camp Dodge, Iowa*, base hospital, for instruction, Capt. G. J. EGAN, LaCrosse.

*To Camp Grant, Ill.*, for instruction, Lieut. J. A. HEARTY, Milwaukee.

*To Camp Pike, Ark.*, base hospital, for instruction, Capt. C. O. LATHAM, Green Bay.

*To Fort Oglethorpe* for instruction, Capt. E. D. RIGBY, Milwaukee; Lieuts. F. B. WELCH, Janesville; B. F. KOCH, Wauwatosa.

*To Fort Riley* for instruction, Lieuts. C. W. RICE, Delavan; H. J. HAUBRICK, Oshkosh; R. E. BOERN, Stockbridge.

*To New Haven, Conn.*, Yale Army Laboratory School for instruction, Capt. J. J. SEELMAN, Milwaukee.

### Wyoming

*To Fort Riley* for instruction, Lieuts. H. E. McCOLLUM, Laramie; E. S. LAUZER, Rock Springs.

## ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

### Alabama

*To Camp Bowie, Texas*, base hospital, for instruction, from Fort Oglethorpe, Lieut. C. H. MOORE, Birmingham.

*To Fort McPherson, Ga.*, Lieut. R. H. LISTER, Muscle Shoals.

*To Fort Riley to examine the command* for nervous and mental diseases, Lieut. A. A. THURLOW, Cullman.

*To Fort Sam Houston, Texas*, base hospital, for instruction, from Fort Oglethorpe, Capt. J. M. BARFIELD, Lineville.

*To Hot Springs, N. C.*, Lieut. C. H. DRAKE, Birmingham.

*To Rockefeller Institute* for instruction in the treatment of infected wounds, Lieut. M. J. HEATH, Ensley.

### Arizona

*To Denver, Colo.*, from Southern Department, Capt. B. A. WARREN, Leupp.

*To Fort Sam Houston, Texas*, Capt. G. H. FITZGERALD, Bisbee.

### Arkansas

*To Camp Crane, Pa.*, from Rockefeller Institute, Lieut. J. C. SIMPSON, Hamburg.

*To Camp McClellan, Ala.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. W. K. GRAY, Little Rock.

*To Camp Pike, Ark.*, from Camp Bowie, Capt. W. K. SMITH, Hot Springs.

*To Fort Oglethorpe* for instruction, Lieut. W. F. BALL, Batesville.

*To Fort Riley* for instruction, Lieut. D. STAPLES, Little Rock.

*To New Haven, Conn.*, Yale Army Laboratory School, for instruction, Capt. I. H. JEWELL, Paris.

### California

*To Army Medical School* for instruction, from Camp Lewis, Lieut. R. W. WILCOX, San Francisco.

*To Camp Beauregard, La.*, from Fort Riley, Capt. H. A. BARCLAY, San Diego.

*To Camp Crane, Pa.*, from Alcatraz, Calif., Capt. F. C. SHURTLEFF, Los Angeles; from Camp Cody, Capt. A. K. BRUMAN, San Francisco; from Camp Fremont, Capts. R. L. BYRON, Los Angeles; E. K. KOPKINS, San Francisco; from Camp Kearney, Capt. G. T. POMEROY, Oakland; from Camp Lewis, Capt. J. R. BROWN, San Francisco; from Fort Oglethorpe, Lieut. A. J. HOLETON, San Diego. Mobile hospital from Camp Kearney, Lieut. R. G. VAN NUYS, Oakland; from San Francisco, Capt. R. G. DUFFICY, San Rafael.

*To Camp Custer, Mich.*, base hospital, Capt. G. H. BRASH, Los Angeles.

*To Camp Dodge, Iowa*, base hospital, from Camp Lewis, Lieut. T. C. SCHNEERES, Los Angeles.

*To Camp Fremont, Calif.*, as orthopedic surgeon, from San Francisco, Capt. H. V. HOFFMAN, San Francisco.

*To Leon Springs, Texas*, from Fort Riley, Lieut. W. B. HILL, Long Beach.

*To New York*, Cornell Medical College, as instructor, from Fort Oglethorpe, Lieut. F. W. H. TAYLOR, San Diego.

*To report to the commanding general*, Western Department, from Fort McDowell, Capt. T. B. ROCHE, San Francisco.

*To Rockefeller Institute* for instruction in the treatment of pneumonia, Lieut. M. C. CHENEY, Berkeley.

*To San Diego, Calif.*, Rockwell Field, from Mineola, Capt. J. F. GRANT, San Diego.

*To San Francisco, Calif.*, Letterman General Hospital, from Camp Fremont, Lieut. G. E. MYERS, Agnew.

*To Vancouver Barracks, Wash.*, to examine the troops for tuberculosis, from Camp Fremont, Capt. O. O. YOUNG, Garden Grove.

### Canal Zone

*To Fort Sam Houston*, as department surgeon, from Panama Canal Department, Col. W. H. WILSON.

*To New Haven, Conn.*, Yale Army Laboratory School, for instruction, from Canal Zone, Capt. L. B. BATES, Ancon.

### Colorado

*To Camp Fremont, Calif.*, from Camp Lewis, Major A. J. MARKLEY, Denver.

*To Camp Gordon, Ga.*, base hospital, for instruction, from Fort Oglethorpe, Capt. W. A. KICKLAND, Fort Collins.

*To Camp Zachary Taylor, Ky.*, from Fort Oglethorpe, Capt. C. H. WILKINSON, Canon City.

*To Denver, Colo.*, from Fort Logan, Capt. J. C. GORSUCH, Denver.

*To Mineola, N. Y.*, Hazelhurst Field, for instruction, from Camp Dick, Lieut. M. D. BROWN, Craig.

*To San Francisco, Calif.*, Letterman General Hospital, from Talmadge, Calif., Lieut. H. E. FARNSWORTH, Denver.

### Connecticut

*To Camp Dick, Texas*, to assist the flight surgeon, from Walter Reed General Hospital, Capt. A. E. BRIDES, New Haven.

*To Camp Sevier, S. C.*, to examine drafted men for nervous and mental diseases, from Camp Jackson, Lieut. S. E. WELD, Hartford.

*To Hot Springs, N. C.*, for instruction, Lieut. L. G. BEARDSLEY, Bridgeport.

*To Rockefeller Institute* for instruction, Lieut. W. A. MONAGHAN, Hartford.

### District of Columbia

*To Camp Beauregard, La.*, from Eastern Department, Major WILLIAM E. HALL.

*To Camp Bowie, Texas*, from Washington, Lieut.-Col. H. B. McINTYRE.

*To Camp Dix, N. J.*, from Washington, Lieut.-Col. L. R. POUST.

*To Camp Dodge, Iowa*, from Southern Department, Major L. D. CRUICE.

*To Vancouver Barracks, Wash.*, Col. R. G. EBERT.

*To Walter Reed General Hospital, D. C.*, from duty as a contract surgeon, Lieut. R. H. LEECE, Washington.

*To Washington, D. C.*, from Southern Department, Col. J. B. CLAYTON. Army War College, for instruction, and on completion *to Camp Greene, N. C.*, from Army Medical School, Lieut.-Col. G. H. SCOTT.

### Florida

*To Camp Crane, Pa.*, mobile hospital, from Fort Oglethorpe, Lieut. E. C. BRUNNER, Miami.

*To Camp Gordon, Ga.*, from Camp Sheridan, Capt. M. E. HECK, St. Augustine.

*To Camp Sherman, Ohio*, as assistant to division surgeon, from Camp Gordon, Major H. O. BLACK, Jacksonville.

*To French Lick, Ind.*, from Camp Wheeler, Capts. E. T. SELLERS, Jacksonville; A. M. AMES, Pensacola.

*To New York*, Bellevue Hospital, for instruction, from Fort Oglethorpe, Capt. L. A. PEEK, West Palm Beach.

### Georgia

*To Camp A. A. Humphreys, Va.*, as commanding officer of base hospital, from Fort Oglethorpe, Major J. M. GREER.

*To Camp Crane, Pa.*, from Fort Des Moines, Capt. W. L. COOKE, Columbus.

*To Camp Devens, Mass.*, from Camp Forrest, Lieut. J. P. JONES, Savannah.

*To Camp Lee, Va.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. C. L. PEACOCK, Atlanta.

*To Camp Pike, Ga.*, base hospital, Lieut. H. T. EDMONDSON, Berlin. Base hospital, for instruction, from Fort Oglethorpe, Lieut. C. USHER, Savannah.

*To Camp Sevier, S. C.*, Capt. N. CRAIG, Atlanta.

*To Camp Sherman, Ohio*, base hospital, Lieut. D. D. WALKER, Macon.

*To Camp Wadsworth, S. C.*, as tuberculosis examiner, from New Haven, Lieut. ELKIN, Atlanta. To examine the troops for cardiovascular diseases, from Lakewood, Major J. W. DANIEL, Savannah.

*To Camp Wheeler, Ga.*, base hospital, Lieut. E. G. ADAMS, Greensboro.

*To Camp Zachary Taylor, Ky.*, base hospital, Lieut. E. ISEMAN, Savannah.

*To Detroit, Mich.*, from Atlanta, Lieut. C. O. MIDDLEBROOKS, Bogart.

### Idaho

*To Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Riley, Lieut. R. FALK, Boise.

*To Camp Crane, Pa.*, from Fort Oglethorpe, Capt. J. ASPRAY, Moscow.

### Illinois

*To Austin, Texas*, State University, from Fort Sill, Lieut. P. H. ROWE, Chicago.

*To Camp Abraham Eustis, Va.*, camp hospital, for instruction, from Fort Oglethorpe, Lieut. F. L. BROWN, Oak Park.

*To Camp Beauregard, La.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. J. C. GARARD, Chicago.

*To Camp Bowie, Texas*, base hospital, for instruction, from Fort Riley, Capt. M. PFEIFFENBERGER, Alton.

*To Camp Crane, Pa.*, from Fort Oglethorpe, Capts. G. L. DAVENPORT, H. SCOTT, Chicago; R. C. DANFORD, Pana; from the Surgeon-General's Office, Lieut. A. S. BAILEY, Chicago. Mobile hospital, from Fort Oglethorpe, Capt. W. H. GILMORE, Mount Vernon; Lieuts. L. H. HILLS, D. J. MARGOLIS, Chicago.

*To Camp Custer, Mich.*, base hospital, from Camp Grant, Lieuts. S. J. PEARLMAN, H. S. SULLIVAN, Chicago; from Camp Sherman, Capt. B. R. BEERS, Chicago; from Camp Zachary Taylor, Lieut. B. KING, Olney. Base hospital, for instruction, Lieut. B. W. CLAYPOOL, Chicago; from Fort Oglethorpe, Lieut. D. N. EISENDRATH, Chicago.

*To Camp Devens, Mass.*, from Army Medical School, Lieut. C. E. BERGIN, Chicago. Base hospital, from Mineola, Capt. N. S. DAVIS, 3rd, Chicago.

*To Camp Dix, N. J.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. S. F. KUBALA, Chicago.

*To Camp Dodge, Iowa*, as assistant to camp surgeon, from Fort Oglethorpe, Capt. J. A. RAPPLEMAN, Chicago.

*To Camp Gordon, Ga.*, from Fort Oglethorpe, Capt. W. W. HOYT, Chicago. Base hospital, from Camp Wadsworth, Lieut. L. E. MEE, Wilmette.

*To Camp Grant, Ill.*, from Army Medical School, Lieuts. E. H. ALBERS, Chicago; F. E. BEST, Freeport. Base hospital, for instruction, Lieut. P. F. SNYDER, Chicago.

*To Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Lieut. A. D. WEIRICK, Marseilles. Base hospital, for instruction, from Fort Oglethorpe, Capt. C. E. GREER, Charleston.

*To Camp Joseph E. Johnston, Fla.*, from Fort Oglethorpe, Capt. S. ROSENBLATT, Chicago. Base hospital, for instruction, from Fort Oglethorpe, Lieut. J. T. GREGORY, Chicago.

*To Evereaux, Tex.*, Barron Field, as flight surgeon, from Mineola, Capt. G. W. MOSHER, Chicago.

*To Fort Jay, N. Y.*, for consultation and on completion, *to Washington, D. C.*, for consultation, from Camp Lewis, Major H. M. ADLER, Chicago.

*To Fort McPherson, Ga.*, from Fort Oglethorpe, Capt. J. R. ERNST, Peoria.

*To Fort Oglethorpe*, base hospital, from Camp Meade, Lieut. J. EISENSTAEDT, Chicago. Evacuation hospital, from Camp Grant, Lieut. R. H. STENGER, Kankakee. For instruction, Capts. G. FITZPATRICK, Chicago; H. G. WRIGHT, DeKalb; Lieut. P. M. HUNTER, F. REINSCH, Chicago; from duty as an enlisted man, Lieut. C. G. HAIDOPOULOS, Chicago.

*To Fort Riley* for instruction, Lieuts. S. E. OXFORD, Cave-in-Rock; J. I. MARTIN, G. L. OSTROWSKEY, Chicago; A. O. MOORE, Highland Park.

*To Fort Snelling, Minn.*, base hospital, from Fort Des Moines, Capt. W. W. COLEMAN, Lincoln.

*To Garden City, N. Y.*, from Mineola, Lieut. T. A. WAYLAND, Dallas City; from St. Paul, Lieut. F. L. POWERS, Chicago.

*To Hoboken, N. J.*, from Camp Zachary Taylor, Capt. N. KERR, Chicago; from Eastern Department, Capt. T. J. O'MALLEY, Chicago.

*To Hot Springs, N. C.*, from Fort Oglethorpe, Lieut. H. M. WILSON, Granville; from Richmond, Capt. A. B. KEYES, Chicago.

*To Mineola, N. Y.*, Hazelhurst Field, from Camp Custer, Capt. N. C. GILBERT, Chicago. Hazelhurst Field, for instruction, from St. Paul, Major O. VARNELL, Decatur.

*To New Haven, Conn.*, Yale Army Laboratory School, for instruction, Capt. F. M. WOOD, Chicago.

*To New York*, Bellevue Hospital, for instruction, from Fort Oglethorpe, Lieut. C. W. SEEVER, Sheldon.

*To Richmond Va.*, from Camp Pike, Major C. H. McKENNA, Chicago.

*To Urbana, Ill.*, from Mt. Clemens, Lieut. R. F. KNOLL, Chicago.

The following order has been revoked: *To Camp Grant, Ill.*, base hospital, Lieut. H. S. SULLIVAN, Chicago.

### Indiana

*To Camp Bowie, Texas*, base hospital, for instruction, from Fort Oglethorpe, Capt. M. I. ROSENTHAL, Fort Wayne.

*To Camp Crane, Pa.*, from Camp Custer, Lieuts. J. A. M. ASPY, Indianapolis; R. A. GILMORE, Michigan City; from Camp Devens, Lieut. H. C. BRAUCHLA, Indianapolis; from Camp Zachary Taylor, Lieut. C. N. FRAZIER, Indianapolis. Mobile hospital, from Camp Kearney, Capt. E. B. CHENOWETH, Nineveh.

*To Camp Custer, Mich.*, base hospital, Capt. R. L. SENSENICH, South Bend; from Camp Sherman, Lieuts. E. B. RUSCHLIN, Lafayette; W. O. FRELIGH, Terre Haute; from Mineola, Capt. E. D. WALES, Indianapolis.

*To Camp Dix, N. J.*, from Fort Oglethorpe, Capt. S. McGAUGHEY, Indianapolis.

*To Camp Gordon, Ga.*, base hospital, from Camp Sevier, Capt. R. G. HENDRICKS, Indianapolis.

*To Camp Greene, N. C.*, base hospital, from Camp Wadsworth, Capt. E. R. CHURCHELL, Richmond; Lieut. A. F. SCHULTZ, Lafayette.

*To Camp Jackson, S. C.*, base hospital, from Fort Riley, Major G. W. NEWELL, Peru.

*To Camp Lee, Va.*, base hospital, from Camp Sherman, Capt. F. TERFLINGER, Logansport.

### Iowa

*To Camp Crane, Pa.*, from Rockefeller Institute, Lieut. M. T. MORTON, Iowa City. Mobile hospital, from Camp MacArthur, Capt. E. S. EVANS, Grinnell.

*To Camp Gordon, Ga.*, base hospital, from Camp Sevier, Capt. J. R. BRADY, Sioux City.

*To Camp Lee, Va.*, from Fort Oglethorpe, Lieut. A. H. KONIGMACHER, Council Bluffs.

*To Camp Sherman, Ohio*, base hospital, from Camp Dodge, Capt. G. T. McCAULIFF, Webster City; Lieut. R. W. WOOD, Newton.

Base hospital for instruction, Lieut. L. B. E. OLIVER, Sigourney.

*To Camp Travis, Texas*, from Fort Riley, Lieut. H. S. DETCHON, Victor.

*To Camp Wheeler, Ga.*, from Camp Meade, Capt. G. R. HILL, Charter Oak.

### Kansas

*To Camp Pike, Ark.*, base hospital, from Camp Beauregard, Capt. L. S. COPLAN, Wellington.

*To Camp Sheridan, Ala.*, from Camp Gordon, Capt. E. A. DRAKE, Natoma.

*To Camp Travis, Texas*, from Fort Riley, Capt. A. A. SHELLEY, Galena.

*To Fort Benjamin Harrison*, base hospital, from Camp Dodge, Lieut. F. P. MANN, Valley Falls; from Camp Travis, Capt. G. H. HOBSON, Kansas City.

*To Fort Oglethorpe* for instruction, from Fort Riley, Lieut. O. R. BRITTAIN, Salina.

*To Fort Riley* for instruction, from Walter Reed General Hospital, Lieut. W. L. BUTLER, Stafford.

*To Fort Sheridan, Ill.*, base hospital, from Camp Bowie, Lieut. E. M. IRELAND, Coldwater.

### Kentucky

*To Camp Crane, Pa.*, mobile hospital, from Camp MacArthur, Lieut. J. S. McGINNIS, Lexington.

*To Camp Greene, N. C.*, Lieut. O. A. EDDLEMAN, Benton.

*To Camp Lee, Va.*, from North Charleston, S. C., Capt. G. W. HILL, Springfield.

*To Camp Meade, Md.*, from Fort Meyer, Lieut. E. D. TURNER, Cave City.

### Louisiana

*To Camp MacArthur, Texas*, base hospital, for instruction, from Fort Oglethorpe, Lieut. R. C. WEBB, Rayne.

*To New York*, Bellevue Hospital, for instruction, from Fort Oglethorpe, Capt. L. O. CLARK, Lafayette.

*To report to the commanding general*, Southeastern Department, Lieut. V. J. FUNDERBURK, Monroe.

### Maine

*To Camp Crane, Pa.*, from Fort Oglethorpe, Capt. J. S. BRAGG, Winter Harbor.

*To Camp Gordon, Ga.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. H. C. BUNDY, Lake View.

*To Camp Meade, Md.*, evacuation hospital, from Fort Oglethorpe, Lieut. N. BISSON, Waterloo.

*To Camp Wadsworth, S. C.*, as tuberculosis examiner, from New Haven, Capt. C. R. O'BRIEN, Bangor.

*To Charleston, S. C.*, from Fort Oglethorpe, Lieut. H. M. HOWES, Portland.

*To Hoboken, N. J.*, from Camp Jackson, Capt. H. M. CHAPMAN, Bangor.

### Maryland

*To Camp Crane, Pa.*, from Fort Oglethorpe, Capt. P. WROTH, Hagerstown.

*To Camp Jackson, S. C.*, base hospital, from Camp Sevier, Lieut. B. E. HARRELL, Baltimore.

*To Camp Pike, Ark.*, base hospital for instruction, from Fort Oglethorpe, Lieut. H. H. STANSBURY, Baltimore.

*To Camp Travis, Texas, to examine the troops* for cardiovascular diseases, from Camp Jackson, Lieut. I. J. FEINGLOZ, Baltimore.

*To Colonia, N. J.*, from Hoboken, Capt. R. FAYERWEATHER, Baltimore.

*To Fort Des Moines, Iowa*, base hospital, for instruction, from Fort Oglethorpe, Lieuts. T. S. MOISE, E. NOVAK, Baltimore.

*To Rockefeller Institute* for instruction in the treatment of infected wounds, Lieut. W. A. DARBY, Baltimore.

### Massachusetts

*To Camp Jackson, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. W. A. BISHOP, North Abingdon.

*To Camp Lee, Va.*, from Biltmore, N. C., Lieut. F. A. STEVENS, Boston.

*To Camp Meade, Md.*, base hospital, for instruction, Lieut. G. M. SHIPTON, Pittsfield.

*To Camp Sevier, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. S. P. WILDE, New Bedford.

*To Camp Sherman, Ohio*, base hospital, from Camp Lee, Lieut. M. M. HAMBURG, Waltham.

*To Camp Wadsworth, S. C.*, from Fort Oglethorpe, Lieut. F. C. SHULTIS, Leominster. As tuberculosis examiner, from Fort Oglethorpe, Lieut. W. L. TUCKER, Hinsdale.

*To Camp Zachary Taylor, Ky.*, from Fort Oglethorpe, Lieut. J. P. A. BACON, Lawrence.

*To Fort Myer, Va.*, from Camp Wheeler, Lieut. F. C. LEAVITT, Belmont.

*To Fort Oglethorpe*, evacuation hospital, from Camp MacArthur, Lieut. R. L. ASHMORE, Palmer. For instruction, from Camp Meade, Lieut. R. D. PAUL, Boston.

*To Ithaca, N. Y.*, Cornell University, from Everman, Texas, Lieut. E. E. LIGHT, East Long Meadow.

*To New Haven, Conn.*, Yale Army Laboratory School, for instruction, from Atlanta, Ga., Major H. L. CONNER, Haverhill.

*To Rockefeller Institute* for instruction in the treatment of infected wounds, Lieuts. J. H. GALLAGHER, Chicopee; L. C. DURSTHOFF, Lowell.

The following orders have been revoked: *To Camp Crane, Pa.*, from Rockefeller Institute, Lieut. A. B. LYON, Boston; *to Camp Jackson, S. C.*, base hospital, Major F. R. JOUETT, Cambridge.

### Michigan

*To Austin, Texas*, State University, from Fort Sill, Lieut. R. S. GOUX, Detroit.

*To Camp Beauregard, La.*, base hospital, from Camp Shelby, Capt. B. F. GREEN, South Hillsdale.

*To Camp Crane, Pa.*, from Camp Custer, Lieut. R. A. MORTER, Kalamazoo; from Camp Dodge, Lieut. J. K. ORMOND, Detroit; from Camp Meade, Lieut. W. B. ANDERSON, Jackson; from Hoboken, N. J., Capt. M. L. CUSHMAN, Lansing.

*To Camp Custer, Mich.*, base hospital, Lieut. W. H. NILES, Marshall; from Camp Sherman, Capt. F. C. WARNSHUIS, Grand Rapids.

*To Camp Dodge, Iowa*, base hospital, from Camp Beauregard, Capt. B. FRIEDLANDER, Saginaw.

*To Camp Sherman, Ohio*, base hospital, for instruction, Capt. L. S. RAMSDELL, Manistee.

*To Camp Wadsworth, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Capt. C. GEORG, Jr., Ann Arbor.

*To Fort Oglethorpe* for instruction, Capt. W. C. White, Yale.

*To Princeton, N. J.*, Princeton University, from South San Antonio, Lieut. R. F. BOONSTRA, Detroit.

*To Raleigh, N. C.*, Lieut. A. J. DROLETT, Lansing.

### Minnesota

*To Berkeley, Calif.*, University of California, from Houston, Lieut. R. A. JOHNSON, Minneapolis.

*To Camp Sherman, Ohio*, base hospital, from Camp Custer, Lieut. D. E. NELSON, Brainerd.

*To Camp Travis, Texas*, from Fort Riley, Capts. J. A. GATES, Kenyon; C. C. WALKER, Lamberton.

*To Camp Zachary Taylor, Ky.*, base hospital, from Fort McPherson, Major W. M. CHOWNING, Minneapolis.

*To Fort Benjamin Harrison*, base hospital, from Camp Grant, Capts. M. M. GHENT, M. C. WELCH, St. Paul.

*To Fort Bliss, Texas*, from Camp Bowie, Lieut. H. E. CANFIELD, Willmar.

*To Fort Oglethorpe*, evacuation hospital, from Ann Arbor, Lieut. W. B. MARTIN, Fergus Falls.

*To Fort Riley for instruction*, Lieut. H. A. MOLANDER, St. Paul.

*To Lake Charles, La.*, Gerstner Field, from Mineola, Lieut. P. B. GILLESPIE, Minneapolis.

The following order has been revoked: *To Camp Meade, Md.*, from Camp Lee, Major J. C. SESSIONS, Minneapolis.

### Mississippi

*To Camp Zachary Taylor, Ky.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. J. B. HIRSCH, Greenville.

### Missouri

*To Biltmore, N. C.*, from Fort Oglethorpe, Lieut. K. R. BARNUM, Sedalia.

*To Camp A. A. Humphreys, Va.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. J. D. BOEHM, Monett.

*To Camp Crane, Pa.*, from Fort Oglethorpe, Capt. W. J. SHELTON, DeKalb; from the Surgeon-General's Office, Major H. G. WYER, Kirkwood.

*To Camp Custer, Mich.*, for instruction in the base hospital, and on completion *to his proper station*, from Camp Hancock, Major R. W. SCHLUETER, St. Louis.

*To Camp Gordon, Ga.*, from Army Medical School, Lieut. B. W. LEWIS, St. Louis. Base hospital, from Camp Travis, Capt. J. D. PORTERFIELD, Jr., Cape Girardeau.

*To Camp Grant, Ill.*, from Army Medical School, Lieuts. J. H. MURPHY, S. J. WOLFERMAN, St. Louis. As camp psychiatrist, from Jefferson Barracks, Lieut. J. F. McFADDEN, St. Louis.

*To Camp Greene, N. C.*, base hospital, from Fort Porter, Capt. F. L. LONG, Farmington.

*To Camp Hancock, Ga.*, base hospital, for instruction, from Fort Oglethorpe, Capt. W. J. FERGUSON, Sedalia.

*To Camp Joseph E. Johnston, Fla., to examine the command* for nervous and mental diseases, from Camp Pike, Capt. H. S. MAJOR, Fulton.

*To Camp Lewis, Wash.*, from Camp Kearney, Major R. S. BRYAN, St. Louis.

*To Camp McClellan, Ala.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. W. J. SPARHAWK, St. Louis.

*To Camp Sevier, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Capt. H. E. HAPPEL, St. Louis.

*To Camp Sheridan, Ala.*, base hospital, for instruction, from Fort Oglethorpe, Capt. J. R. GREEN, Independence. For instruction, Lieut. A. R. COHN, Kansas City.

*To Camp Sherman, Ohio*, base hospital, for instruction, from Fort Riley, Lieut. P. LUX, Kansas City.

*To New York*, Bellevue Hospital, for instruction, from Fort Oglethorpe, Capt. F. J. MOENNIGHOFF, Odessa. Neurological Institute, for instruction, from Fort Riley, Lieut. L. E. MONROE, Bonne Terre.

The following order has been revoked: *To Camp Shelby, Miss.*, from Fort Oglethorpe, Capt. R. H. MORRIS, Kansas City.

## Montana

*To Camp Custer, Mich.*, base hospital, for instruction, from Fort Sheridan, Ill., Major R. HORSKY, Helena.

*To Camp Dodge, Iowa*, base hospital, for instruction, Capt. A. E. Longeway, Great Falls.

*To Cape May, N. J.*, base hospital, from Rockefeller Institute, Lieut. J. D. HOBSON, Missoula.

*To Fort Oglethorpe* for instruction, Major W. C. RIDDELL, Helena.

*To Jefferson Barracks, Mo.*, Lieut. J. J. FLYNN, Missoula.

## Nebraska

*To Berkeley, Calif.*, University of California, from Houston, Lieut. J. R. KLEYLA, Omaha.

*To Camp Bowie, Texas*, base hospital, for instruction, from Fort Oglethorpe, Capt. G. H. RATHBUN, Fremont.

*To Camp Crane, Pa.*, from Fort Oglethorpe, Lieut. C. B. COE, Wakefield; from Hoboken, Major A. J. BROWN, Omaha.

*To Camp Jackson, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Major S. R. HOPKINS, Hastings.

*To Camp Joseph E. Johnston, Fla.*, from Fort Oglethorpe, Capt. A. E. GADBOIS, Madison.

*To Camp Meade, Md.*, evacuation hospital, from Watervliet, N. Y., Capt. J. BUIS, Pender.

*To Fort Oglethorpe* for instruction, Capt. T. J. JONES, St. Edwards.

*To Fort Riley*, as orthopedic surgeon, from Camp Travis, Lieut. L. K. STRATE, Hastings.

*To New Haven, Conn.*, Yale Army Laboratory School, for instruction, from Atlanta, Capt. E. H. McLEAN, Omaha.

## New Hampshire

*To Camp McClellan, Ala.*, base hospital, from Fort Oglethorpe, Capt. C. F. NUTTER, Nashua.

## New Jersey

*To Camp Dix, N. J.*, Lieut. L. H. ROGERS, Trenton.

*To Camp Greene, N. C.*, base hospital, for instruction, from Biltmore, N. C., Capt. N. K. BENTON, Newark.

*To Camp Jackson, S. C.*, base hospital, Lieut. C. P. CLARK, Summit.

*To Camp Meade, Md.*, base hospital, for instruction, Lieut. A. KROLL, Jr., Passaic.

*To Fort Des Moines, Iowa*, base hospital, for instruction, from Fort Oglethorpe, Capt. C. B. LUFBURROW, Plainfield.

*To Fort Oglethorpe* for instruction, Lieut. N. P. LOBSENZ, Passaic.

*To New Haven, Conn.*, Lieut. J. F. A. RUBACKY, Passaic.

*To New York, Bellevue Hospital*, for instruction, from Fort Oglethorpe, Capt. N. W. CURRIE, Plainfield.

*To Picatinny, N. J.*, Lieut. R. B. JARRATT, Penns Grove.

*To Rockefeller Institute* for instruction in the treatment of infected wounds, Lieuts. M. KUMMEL, Harrison; J. N. PANNULLO, Newark; E. H. SEIFERT, Paterson.

*To Urbana, Ill.*, from Mount Clemens, Lieut. S. Z. ORGEL, Hackensack.

*To Washington, D. C.*, Army War College, for instruction, and on completion *to Camp Devens, Mass.*, from Camp Dix, Lieut.-Col. W. H. HUTCHINGS.

## New York

*To Camp A. A. Humphreys, Va., to examine the command* for nervous and mental diseases, from Fort Oglethorpe, Capt. J. C. FISK, New York.

*To Camp Abraham Eustis, Va.*, camp hospital, for instruction, from Fort Oglethorpe, Lieut. H. S. MARCLEY, New York.

*To Camp Crane, Pa.*, from Camp Wheeler, Capt. H. B. PRITCHARD, Syracuse; Lieut. F. C. KELLER, New York. From Fort Oglethorpe, Lieut. J. H. BERNHARD, New York; from Rockefeller Institute, Lieut. D. S. DOOMAN, Buffalo; from Washington, Lieut. P. W. DeGARMO, Kingston. Mobile hospital, from Camp Joseph E. Johnston, Lieut. A. A. J. JOHNSON, Brooklyn; from Fort McHenry, Lieut. B. W. McCUEN, Syracuse; to Fort Oglethorpe, Lieut. W. F. HUME, New York.

*To Camp Devens, Mass.*, from Army Medical School, Lieuts. H. B. SWAN, Chestertown; J. L. HEMSTEAD, Waterford; as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. H. S. REYNOLDS, Schenectady. Base hospital, from Boston, Lieut. C. K. DEMING, New York. Base hospital, for instruction, Lieuts. J. J. FINIGAN, Buffalo; A. B. ALLEN, New York; T. F. JUDGE, Troy.

*To Camp Dick, Texas*, from Love Field, Dallas, Lieut. D. D. STOWELL, New York.

*To Camp Dix, N. J.*, from Army Medical School, Lieuts. M. B. BENDER, L. F. SANMANN, New York; R. E. ELLIOTT, Rochester, from Fort Oglethorpe, Lieut. G. FLAMM, New York.

*To Camp Dodge, Iowa, to examine the command* for nervous and mental diseases, from Fort Benjamin Harrison, Capt. B. R. NAIRN, Buffalo.

*To Camp Gordon, Ga.*, base hospital, from Camp Wheeler, Lieut. P. F. PURCELL, Schenectady.

*To Camp Greene, N. C.*, base hospital, from Biltmore, N. C., Lieut. R. C. SCHLEUSSNER, New York. Base hospital, for instruction, from Fort Oglethorpe, Lieut. I. W. KAHN, New York. Evacuation hospital, from Fort Oglethorpe, Lieut. J. KAUFMAN, New York.

*To Camp Hancock, Ga.*, base hospital, from Camp Jackson, Capt. E. N. WILCOX, Pleasantville.

*To Camp Holabird, Md.*, from Army Medical School, Lieut. B. J. SLATER, Rochester.

*To Camp Jackson, S. C.*, from Army Medical School, Lieut. G. P. McNEILL, Jr., New York; from Fort McHenry, Lieut. B. ROSENTHAL, New York. Base hospital, for instruction, from Fort Oglethorpe, Capt. I. M. HOLLY, Brooklyn.

*To Fort Oglethorpe*, base hospital, from Camp McClellan, Lieut. R. PEMBERTON, New York; from Camp Wadsworth, Lieut. R. B. ERNEST, Ja., New York; from Houston, Lieut. A. VALENSI, New York. For instruction, Capt. C. H. HOWELL, New York; Lieuts. H. AGRIS, H. SHARLIT, Brooklyn; T. J. O'RIORDAN, J. RESNIK, New York; A. WINKELSTEIN, Syracuse; from Camp Greene, Lieut. H. T. CARTWRIGHT, New York.

*To Fort Slocum, N. Y.*, and on completion *to Washington, D. C.*, from Syracuse, Lieut. F. N. POTTS, Buffalo.

*To Hot Springs, N. C.*, for instruction, Lieut. L. J. DeRUSSO, Albany.

*To Jefferson Barracks, Mo.*, from Syracuse, Capt. E. W. BROWN, Mount Kisco.

*To Lakewood, N. J.*, Lieut. H. T. HYMAN, New York.

*To Lowoke, Ark.*, Eberts Field, as flight surgeon, from San Antonio, Capt. D. H. WEBSTER, New Rochelle.

*To Morrison, Va.*, from Fort Oglethorpe, Lieut. T. P. GOLDSTEIN, New York.

*To New Haven, Conn.*, from Army Medical School, Lieut. W. G. HAYWARD, Jamestown; from Camp Gordon, Lieut. I. E. LISS, New York. Yale Army Laboratory School, from Army Medical School, Lieuts. G. P. McNEILL, Ja., M. M. NEMSER, New York. Yale Army Laboratory School for instruction, Lieuts. E. KELLERT, Albany; W. ZIELENSKI, Buffalo; F. C. McCLELLAN, Canandaigua; from Atlanta, Capt. M. C. FIELD, Brooklyn; from Camp Gordon, Major H. I. VAN WINKLE, Albany; from Canal Zone, Major O. TEAGUE, Staten Island; from Fort Oglethorpe, Majors B. F. KNAUSE, Brooklyn; S. BILLINGS, New York; from Rockefeller Institute, Lieuts. A. JUNG, Buffalo; C. B. HOCHMAN, New York.

*To Newport News, Va.*, from Syracuse, Lieut. H. F. GOCKLEY, New York.

*To New York*, Neurological Institute, for instruction, Lieut. B. DIAMOND, New York.

*To Princeton, N. J.*, Princeton University, from South San Antonio, Lieut. P. B. JENKINS, New York.

*To report to the commanding general*, Eastern Department, Lieut. S. W. THOMPSON, Oswego.

*To Rockefeller Institute*, for instruction in the treatment of infected wounds, Lieuts. P. T. HARPER, Albany; J. T. FOWKES, Lafargeville; H. COWAN, New York; J. G. MORRESSEY, Yonkers.

*To San Diego, Calif.*, Rockwell Field, from Mineola, Lieut. P. F. BERNSTEIN, Brooklyn.

*To Urbana, Ill.*, from Mt. Clemens, Lieut. J. P. FITZGERALD, New York.

*To Washington, D. C.*, from Fort Oglethorpe, Capt. M. B. PALMER, Rochester. Army War College, for instruction, and on completion *to Army Medical School*, from Fort Ontario, Lieut.-Col. G. H. SCOTT. For conference and on completion *to Belleville, Ill.*, Scott Field, as flight surgeon, from Mineola, Capt. W. A. SCRUTON, New York. Surgeon-General's Office, from Fort Oglethorpe, Capt. C. BREWER, New York.

The following orders have been revoked: *To Camp Cody, N. M.*, from Fort Riley, Lieut. L. M. VINCENT, New York; *to Camp Crane, Pa.*, from Camp Sheridan, Lieut. B. WILSON, New York.

## North Carolina

*To Camp Bowie, Texas*, base hospital, for instruction, from Fort Oglethorpe, Capt. A. F. REEVES, Asheville.

*To Camp Crane, Pa.*, mobile hospital, from Fort Oglethorpe, Lieut. H. R. LIPSCOMB, Greensboro.

*To Camp Sevier, S. C.*, base hospital, from Fort Oglethorpe, Lieut. H. B. CONRAD, Winston-Salem.

*To Camp Wadsworth, S. C.*, evacuation hospital, from Fort Oglethorpe, Capt. C. E. WOODING, Winston-Salem.

*To Fort McHenry, Md.*, for instruction, Lieut. G. B. ROBERSON, Greensboro.

*To Newport News, Va.*, Lieut. R. A. BAGLEY, Mayock.

## North Dakota

*To New York*, Bellevue Hospital, for instruction, from Fort Oglethorpe, Lieut. J. B. TYRRELL, Underwood.

## Ohio

*To Camp Wheeler, Ga.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. F. W. DIXON, Youngstown.

*To Dayton, Ohio*, Acceptance Park, from Fairfield, Ohio, Capt. P. A. DAVIS, Akron.

*To Detroit, Mich.*, from Fort Oglethorpe, Lieut. E. C. YINGLING, Beaverdam.

*To Fort Des Moines, Iowa*, base hospital, for instruction, from Fort Oglethorpe, Capt. E. A. MURBACH, Archbold.

*To Fort Monroe, Va.*, from Plattsburg Barracks, Capt. A. P. COLE, Cincinnati.

*To Fort Oglethorpe*, Capt. L. A. BREWER, Toledo. For instruction, Major C. A. L. REED, Cincinnati; Capt. R. M. MANLEY, Cleveland; Lieut. W. W. BECK, Toledo.

*To Hoboken, N. J.*, base hospital, from Camp Upton, Lieut. M. E. HARRELL, Woodstock.

*To Hot Springs, N. C.*, from Fort Oglethorpe, Lieut. J. F. BEERMAN, Toledo.

*To Ithaca, N. Y.*, Cornell University, from Evermay, Texas, Lieut. F. W. THOMAS, Piqua.

*To Lakewood, N. J.*, for instruction, Lieut. J. A. GARVIN, Cleveland Heights.

*To New York*, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Fisherman's Island, Va., Lieut. N. C. MAYER, Cleveland.

*To Richmond, Va.*, Lieut. F. G. KREFT, Toledo.

*To West Point, Ky.*, from Camp Zachary Taylor, Capt. H. J. WARE, Cincinnati.

## Oklahoma

*To Camp Crane, Pa.*, mobile hospital, from Fort Sam Houston, Capt. M. E. STOUT, Oklahoma.

*To Camp Lee, Va.*, base hospital, for instruction, from Fort Oglethorpe, Capt. M. ROGERS, Clinton.

*To Camp Meade, Md.*, evacuation hospital, from Fort Oglethorpe, Capt. J. H. WHITE, Muskogee.

*To Camp Shelby, Miss.*, evacuation hospital, from Fort Worth, Lieut. D. E. LITTLE, Eufaula.

*To Columbus, Ga.*, from Fort Sill, Major C. M. O'CONNOR, Jr.
*To Fort Bliss, Texas*, base hospital, from Fort Sam Houston, Capt. F. B. SORGATZ, Oklahoma.
*To Fort Oglethorpe*, base hospital, from New Haven, Capt. J. E. HUGHES, Shawnee.
*To Fort Snelling, Minn.*, base hospital, from Camp Bowie, Lieut. A. R. BUNGARDT, Cordell.
*To New York*, Bellevue Hospital, for instruction, from Fort Oglethorpe, Lieut. R. I. ALLEN, Nowata.

### Oregon

*To Camp Crane, Pa.*, from New Haven, Capt. J. H. THOMPSON, Enterprise.
*To Camp Dick, Texas*, from Dallas, Capt. H. L. UNDERWOOD, La Grande.
*To Camp Lewis, Wash.*, from duty as a contract surgeon, Major R. C. MATSON, Portland.
*To Camp Sheridan, Ala.*, from Camp Forrest, Lieut. W. R. TAYLOR, Milwaukee.

### Pennsylvania

*To Arcadia, Fla.*, Dorr Field, as flight surgeon, from Mineola, Capt. E. E. CAMPBELL, Butler.
*To Azalea, N. C.*, from New Haven, Lieut. H. W. KINDERMAN, Philadelphia; from Waynesville, N. C., Capt. N. R. GRAHAM, Sharpsburg.
*To Berkeley, Calif.*, University of California, from Houston, Lieut. R. T. M. DONNELLY, Philadelphia.
*To Buffalo, N. Y.*, Capt. M. H. BAKER, Pittsburgh.
*To Camp Bowie, Texas*, base hospital, for instruction, from Fort Oglethorpe, Lieut. E. M. ELLSWORTH, Wilkes-Barre.
*To Camp Crane, Pa.*, from Camp Abraham Eustis, Capt. J. H. ARNETT, Philadelphia; from Camp Holabird, Lieut. B. FULTON, Pittsburgh; from Fort Oglethorpe, Capt. W. H. GLYNN, Pittsburgh; Lieuts. E. G. HENRY, Oil City; A. M. SHARPE, Philadelphia; from Rockefeller Institute, Lieuts. S. A. DAPP, Harrisburg; O. R. ETTER, Philadelphia; N. D. GANNON, Pittsburgh. Mobile hospital, from Fort Oglethorpe, Lieut. R. J. HAUSER, Danville; from Williamsbridge, Lieut. L. W. FREDERICK, Philadelphia.
*To Camp Custer, Mich.*, from Army Medical School, Lieut. J. A. LOGAN, Pittsburgh. Base hospital, from Army Medical School, Capt. W. ROSS, Aspinwall; from Camp Sherman, Lieut. E. H. McCLISTER, Kittanning; from Fort McHenry, Capt. S. C. BOWERS, New Freedom.
*To Camp Devens, Mass.*, from Army Medical School, Lieuts. P. L. COOK, J. M. WELCH, Philadelphia. As orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, from Fort Oglethorpe, Lieut. J. A. LAFFERTY, McKees Rock. Base hospital, from Camp Dodge, Capt. C. S. CALDWELL, Swissvale.
*To Camp Dick, Texas*, from Champaign, Ill., Capt. W. S. SHIMER, Philadelphia; from Dallas, Lieut. G. S. CUNNINGHAM, Pittsburgh.
*To Camp Zachary Taylor, Ky.*, base hospital, for instruction, from Fort Oglethorpe, Lieut. P. T. HOPE, Mercer.
*To Fort Oglethorpe* for instruction, from Camp Sevier, Lieut. M. F. SULLIVAN, Philadelphia.
*To Fort Sam Houston, Texas*, base hospital, for instruction, from Fort Oglethorpe, Lieut. P. L. BRUNER, Oil City.
*To Fort Snelling, Minn.*, base hospital, from Camp Dodge, Lieut. J. P. MAUS, Philadelphia.
*To Hoboken, N. J.*, from Camp Upton, Lieut. F. D. LEVY, Philadelphia. Base hospital, from Camp Wheeler, Lieut. E. G. HAWMAN, Reading.
*To Hot Springs, N. C.*, from Fort Oglethorpe, Capt. J. C. BOGG, Pittsburgh.
*To Lake Charles, La.*, Gerstner Field, from Mineola, Lieut. W. C. SMITH, Woodbine.
*To Madison Barracks, N. Y.*, from Fort Oglethorpe, Major J. W. BAUMAN, Lansdale.
*To Markleton, Pa.*, from New Haven, Capt. J. WALSH, Philadelphia.
*To New Haven, Conn.*, Lieut. L. G. FLANNERY, Philadelphia. Yale Army Laboratory School, from Army Medical School, Capt. C. H. MANLOVE, Jr., Altoona; Lieut. J. N. HAYES, Crafton.
*To Newport News, Va.*, from Fort Oglethorpe, Lieut. A. F. BECK, Philadelphia.
*To New York*, Bellevue hospital, for instruction, from Fort Oglethorpe, Capt. T. A. STEELE, McKeesport.
*To Philadelphia, Pa.*, Jefferson Medical College, from the Surgeon-General's Office, Lieut.-Col. J. T. BUGH, Philadelphia.
*To Rockefeller Institute* for instruction in the treatment of infected wounds, Capt. H. C. UPDEGRAFF, Pittsburgh.
*To Syracuse, N. Y.*, Lieut. J. N. CAMP, Foxburg.
*To Washington, D. C.*, for conference, and on completion *to Fort Sill, Okla.*, Post Field, as flight surgeon, from Mineola, Capt. J. H. McKEE, Philadelphia.
The following order has been revoked: *To Camp Crane, Pa.*, from Camp Pike, Lieut. G. D. SCHOONMAKER, Philadelphia.

### Porto Rico

*To Mineola, N. Y.*, Hazelhurst Field, for instruction, from San Diego, Major E. I. VAUGHN, Central Aguirre.

### Rhode Island

*To Camp Sheridan, Ala.*, from Camp Forrest, Lieut. F. H. BECKETT, Providence.
*To Princeton, N. J.*, Princeton University, from South San Antonio, Capt. A. W. STEVENSON, Newport.

### South Carolina

*To Camp Crane, Pa.*, from Camp Wheeler, Lieut. R. H. LONG, Carlisle.
*To Camp Devens, Mass.*, from Camp Forrest, Lieut. W. O. WRIGHTSON, Spartanburg.
*To Camp Lee, Va.*, base hospital, for instruction, Lieut. C. RIGBY, Spartanburg.
*To Camp Wadsworth, S. C.*, Capt. T. J. PEAKE, Clinton. Base hospital, for instruction, Lieut. R. CATHCART, Charleston.
*To Fort Riley*, base hospital, for instruction, from Fort Oglethorpe, Lieut. H. DEAS, Charleston.
*To Hoboken, N. J.*, base hospital, from Camp Hancock, Capt. A. P. McELROY, Union.

### South Dakota

*To Camp Dix, N. J.*, base hospital, for instruction, from Fort Oglethorpe, Capt. J. G. CHICHESTER, Redfield.
*To Camp Gordon, Ga.*, base hospital, for instruction, from Fort Oglethorpe, Capt. J. F. McKIE, Wessington.
*To Hampton, Va.*, Langley Field, from Lee Hall, Lieut. H. D. NEWBY, Parker.

### Tennessee

*To Camp Crane, Pa.*, base hospital, from Walter Reed General Hospital, Lieut. J. W. RAGSDALE, Memphis.
*To Camp Dix, N. J.*, from Fort Oglethorpe, Capt. J. F. ADAMS, Bradyville. Base hospital, for instruction, from Fort Oglethorpe, Lieut. S. MEEKER, Memphis.
*To Camp Zachary Taylor, Ky.*, base hospital, for instruction, Lieut. N. H. COPENHAVER, Bristol.
*To Fort McDowell, Calif.*, from Camp Fremont, Capt. W. A. CASHION, Fayetteville.
*To Mineola, N. Y.*, Hazelhurst Field, from Fort Omaha, Capt. G. E. CAMPBELL, Elizabethton.
*To Washington, D. C.*, Surgeon-General's Office, from Everman, Texas, Capt. L. LEVY, Memphis.

### Texas

*To Camp Pike, Ark.*, base hospital, Lieut. P. E. LUECKE, Galveston; from Fort Benjamin Harrison, Capt. T. T. JACKSON, San Antonio; from Fort Oglethorpe, Lieut. W. C. TENERY, Waxahachie.
*To Camp Sevier, S. C.*, base hospital, from Camp Logan, Lieut. J. L. MITCHELL, San Antonio.
*To Camp Sheridan, Ala.*, base hospital, for instruction, from Fort Oglethorpe, Capt. A. M. McELHANNON, Sherman.
*To Camp Sherman, Ohio*, base hospital, from Camp Fremont, Lieut. T. J. CAGLE, Crosbyton.
*To Camp Travis, Texas*, Lieut. E. W. CLAWATER, Tyler. Base hospital, Lieut. A. E. GREER, Houston. Base hospital, for instruction, Capt. M. R. STOKES, Houston; from Fort Oglethorpe, Capts. J. M. GILL, Austin; T. D. FRIZZELL, Quanah.
*To Camp Zachary Taylor, Ky.*, from Army Medical School, Lieut. E. J. STEVES, San Antonio.
*To College Station, Texas*, from Camp Travis, Capt. O. EHLINGER, College Station.
*To Fort Oglethorpe* for instruction, Major J. E. THOMPSON, Galveston. Capt. J. W. SCOTT, Houston.
*To Fort Riley* for instruction, Lieuts. F. B. HART, Kountze; R. S. K. WOOD, Waco.
*To Fort Sam Houston, Texas*, from Fort Bliss, Major S. M. CORBETT.
*To New York*, Bellevue Hospital, for instruction, from Fort Oglethorpe, Lieuts. E. D. RICE, Tyler; H. E. HOKE, Waco.

### Utah

*To San Francisco, Calif.*, Letterman General Hospital, from Talmadge, Calif., Lieut. F. J. CURTIS, Salt Lake City.

### Vermont

*To Camp Crane, Pa.*, from Fort Oglethorpe, Capt. T. S. BROWN, Burlington.
*To Camp Shelby, Miss.*, base hospital, for instruction, from Fort Oglethorpe, Capt. J. P. GIFFORD, Randolph.
*To New York*, Bellevue Hospital, for instruction, and on completion *to Camp Meade, Md.*, base hospital, from Camp Crane, Lieut. J. P. TIERNEY, St. Johnsbury.

### Virginia

*To Camp Travis, Texas*, as orthopedic surgeon, from Camp Pike, Lieut. W. I. LAUGHON, Bedford.
*To Lakewood, N. J.*, for instruction, from Camp Lee, Lieut. L. E. STUBBS, Gloucester.
*To New Haven, Conn.*, Lieut. W. C. HARMAN, Dolphin.
*To Raleigh, N. C.*, Lieut. A. F. BAGBY, St. Petersburg.
*To Richmond, Va.*, Union University, Lieut. H. L. HARRIS, Jr., Richmond.
*To Rockefeller Institute* for instruction, Lieut. H. W. BLANTON, Richmond.

### Washington

*To Camp Crane, Pa.*, mobile hospital, from Fort Oglethorpe, Lieut. L. S. DEWEY, Okanogan.
*To Mineola, N. Y.*, Hazelhurst Field, for instruction, from Rockwell, San Diego, Capt. G. W. BEELER, Seattle.
The following order has been revoked: *To Camp Lewis, Wash.*, base hospital, Lieut. C. S. PASCOE, Tacoma.

### West Virginia

*To Camp Greene, N. C.*, base hospital, Lieut. W. E. MYLES, White Sulphur Springs. Base hospital, for instruction, Major H. D. HATFIELD, Huntington.
*To Camp McClellan, Ala.*, base hospital, for instruction, from Fort Oglethorpe, Capt. E. B. WRIGHT, Richwood.
*To Camp Travis, Texas*, base hospital, for instruction, from Fort Oglethorpe, Lieut. O. H. GRIFFITH, Parkersburg.
*To Fort Oglethorpe* for instruction, Lieut. C. G. MORGAN, Moundsville.
*To Fort Thomas, Ky.*, from Camp Meade, Lieut. V. L. GLOVER, Inwood.

### Wisconsin

*To Camp Gordon, Ga.*, base hospital, from Army Medical School, Capt. F. A. McJUNKIN, Milwaukee.
*To Camp Grant, Ill.*, base hospital, for instruction, Lieut. J. M. ARNSON, Eau Claire.
*To Camp McClellan, Ala., to examine the troops* for cardiovascular diseases, from Fort Oglethorpe, Lieut. E. I. MOQUIN, Fairwater.
*To Camp Sevier, S. C.*, base hospital, for instruction, from Fort Oglethorpe, Capt. H. A. ROBINSON, Kenosha.
*To Fort Leavenworth, Kan.*, Lieut. F. C. CHRISTENSEN, Racine.
*To New York*, Bellevue Hospital, for instruction, from Fort Oglethorpe, Lieut. W. G. DARLING, Milwaukee.

### Wyoming

*To Camp Crane, Pa.*, base hospital, from Rockefeller Institute, Lieut. J. F. O'DONNELL, Casper.

# Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

## ALABAMA

**Personal.**—Dr. Lee W. Roe has been elected medical inspector of the schools of Mobile, to succeed Dr. M. Toulmin Gaines, who has resigned to enter the military service.

**Home for Antituberculosis Dispensary.**—The Birmingham Anti-Tuberculosis Association at its annual meeting announced that it had purchased a permanent home to house a dispensary. The association adopted resolutions of regret on the death of Lieut. Philip M. Kyser, M. C., U. S. Army, and elected officers. Dr. George Eaves was made secretary of the association; Dr. Horace M. Edmonds, Tonawanda, N. Y., a member of the board of trustees, and Dr. Morris Newfield, a member of the executive committee.

## CALIFORNIA

**Venereal Disease Reports.**—For the first six months of 1918 nearly 2,000 cases of gonorrhea were reported to the state board of health under the new venereal disease regulations, and during the same time about 1,500 cases of syphilis. This represents a great improvement in the reporting of these diseases, and it is expected that for the whole year the number of these cases reported will be greater than the number of tuberculosis cases.

**Shipyard Sanitation.**—California now has an increased number of shipyards and work is being carried on actively. According to the *Bulletin* of the state board of health, sanitary conditions in the neighborhood of some of these shipyards have been bad. A shipyard was built in a marshy district overflowed by tides and consequently a breeding-place for mosquitoes. Mosquitoes were so numerous that they interfered greatly with the work in the shipyard and even compelled the suspension of work at times. This applied also to some of the other shipyards in the state, and it became so serious that the governor was appealed to for aid. He referred the matter to the state board of health, and after investigation, drainage was instituted where possible and standing water covered with oil. At Long Beach this work was done by the local authorities with assistance from Los Angeles, the National Canners' Association and other corporations. The mosquito nuisance has now been abated.

## DISTRICT OF COLUMBIA

**Railway Surgeons to Meet.**—The twelfth annual meeting of the Minneapolis, St. Paul, and Sault Ste. Marie Railway Surgical Association will be held at Hotel Radison, Minneapolis, December 3 and 4.

**Personal.**—Commander Howard F. Strine, M. C., U. S. Navy, has been appointed associate professor of the principles and practice of medicine in Georgetown University, Medical School, and acting chief of the department of surgery, at the University Hospital, Washington, D. C.

## IOWA

**Denied New Trial.**—Dr. C. Allen Snyder, Dubuque, convicted of murder in the second degree and sentenced to twenty years in the penitentiary, is reported to have been denied a new trial.

**Guilty of Disloyalty.**—Dr. Walter A. Matthey, charged with bringing Daniel H. Wallace to Davenport to a seditious meeting, July, 1917, is said to have been found guilty on one of two counts. Sentence has not yet been pronounced.

**Personal.**—Dr. David K. Douthett, Osceola, fractured his right arm while cranking his automobile, October 2.——Dr. E. T. McLaughlin, Knoxville, has started for France where he goes as secretary to the Knights of Columbus——Dr. William C. Goenne has been appointed city physician of Davenport during the absence of Dr. George M. Middleton, in the military service.——Dr. Max E. Witte has been reappointed superintendent of the Clarinda State Hospital.

## MARYLAND

**Public Health Service to Aid in "Flu" Epidemic.**—The state department of health has announced that the United States Public Health Service will send to Maryland four or five doctors to help out in the counties where many of the local physicians are either ill or overworked because of the influenza epidemic.

The most encouraging feature of the situation which has been alarming public health officers for more than a week was the announcement that the disease appeared to be abating somewhat in the city and state, as well as at the military camps. Information received at the Baltimore City Health Department was that the disease seemed to be lessening its grip on South Baltimore. While the deaths in the city did not show any decrease, there was a slight drop in the number of new cases reported. Dr. C. Hampson Jones, chief of the state bureau of communicable diseases, stated that conditions were generally improved in the counties. Reports to this effect came from Cumberland, Hagerstown, Frederick, and Kent County.

**Personal.**—Dr. James J. Murphy, chief of staff of the Emergency Hospital, Annapolis, and county health officer for Anne Arundel County, is ill with pneumonia following an attack of influenza. His removal from active practice is a severe blow to the city, whose depleted supply of physicians are overworked in attending influenza cases.——Dr. James H. Mason Knox, Jr., has returned to Baltimore, after a year in France, where he helped organize the work of the Children's Bureau, a part of the Civilian Relief activities of the Red Cross. Dr. Knox paid two visits to the front, one in Belgium and the other to an American sector, during his stay in France.——Drs. William A. Fisher, William S. Baer and George Walker, all of Baltimore, who were attached to the Hopkins Unit, but since have been detached into other branches of the medical service in France, and Dr. Archibald C. Harrison of the University of Maryland unit have received the rank of lieutenant-colonel. Dr. Fisher is chief assistant to Dr. John M. T. Finney; Dr. Baer has been made chief consultant orthopedic surgeon of the American Expeditionary Forces, and Dr. Walker is doing social hygiene work at ports of debarkation of American soldiers.——The many friends of Prof. Thomas S. Cullen of the Johns Hopkins University will hear with regret the news of the recent death of Mrs. Cullen.

## MINNESOTA

**Health Association Incorporated.**—The Minnesota Public Health Association announces in its weekly bulletin, October 3, that the association has been regularly incorporated in the state as an "educational, scientific and benevolent society, not for gain or profit." The incorporators are the present officers, who are Governor J. A. A. Burnquist, president; M. L. Burton, Dr. Warren L. Beebe, St. Cloud; Mrs. A. L. Robinson, Mrs. Mary Brandrup, Drs. Edward L. Tuohy, Duluth; Pearl M. Hall, Minneapolis; George D. Head, Minneapolis; Prof. F. H. Bass, Mrs. W. L. Laidlaw and A. D. Wilson. The annual meetings will be held in November.

## MONTANA

**State Tuberculosis Society Election.**—At the annual meeting of the Montana State Association for the Prevention and Cure of Tuberculosis, September 25, the following officers were elected: president, H. R. Cunningham, Helena; vice presidents, Dr. Oscar M. Lanstrum, Helena, Mrs. S. Sadler, Great Falls, and Otto Simonson, Butte; honorary vice presidents, Governor S. B. Stewart, Harry Yeager, Great Falls, and Roy Alley, Butte; secretary, Mrs. Sarah Morse, Helena, and treasurer, Dr. T. O. Hammond, Helena. The principal addresses were those by Dr. David R. Lyman, New Haven, Conn., president of the National Tuberculosis Association, on "The Rehabilitation and Reconstruction of the Tuberculous Soldier," and by Dr. Charles J. Hatfield, Philadelphia, secretary of the National Tuberculosis Association, on "The Function of the Organized Tuberculosis Forces."

## NEW JERSEY

**Epidemic Abating.**—According to the health board of Gloucester the epidemic is receding and a few days more will find most of the shipyard workers back at work. Seven additional deaths were reported, October 12, making a total of eighty-five. Sanitary squads are inspecting the homes in which cases have occurred and are volunteering their services to clean and disinfect. In Camden there has been a daily decrease in the number of new cases reported. Up to October 12, 5,163 cases had been reported.

## NEW YORK

**Public Health Nurses Appointed.**—The following places have secured appropriations for public health nurses since April 15; Syracuse, Olean, Rensselaer, Dunkirk, Ogdensburg, Tuckahoe, Herkimer, Endicott, Gloversville, Kingston, Hudson, Norwich, Cohoes, Carthage, Greene, Ticonderoga and the Dutchess County Health Association.

### New York City

**New Naval Hospital in Brooklyn.**—A naval hospital which will house 1,200 patients and a nurses' home for 250 nurses is in the process of construction on Flushing Avenue near Emerson Street, Brooklyn. The building is to be four stories high with a floor area of 280 by 200 feet. The cost of the building will be $950,000. The contract calls for the completion of the building within 120 calendar days.

**Home for Overseas Nurses.**—The New York County Chapter of the American Red Cross opened a temporary home for nurses passing through this city on their way to or from the front, at 11 West Tenth Street, with appropriate exercises on October 10. With more than 1,000 Red Cross nurses always quartered in this city this home will fill a great need in providing rest and recreation for transient nurses.

**Outing for Convalescent Soldiers and Sailors.**—Special Deputy Police Commissioner John A. Harriss, October 1, acted as host to 150 convalescent sailors from United States war ships on duty in foreign waters and 100 marines who are recovering from wounds received in the fighting around Chateau Thierry. The patients were conveyed by automobiles from various hospitals to Dr. Harriss' steam yacht which took them to his summer home at Collender's Point, Conn., where they were entertained with a concert and a shore dinner.

**Influenza in New York.**—The records of the health department show that, from September 18 to October 11, 25,082 cases of influenza have been reported with 394 cases of pneumonia. There have been 183 deaths from influenza and 210 from pneumonia during this period. The board of estimate has given the health department $55,000 with which to fight the epidemic. Health Commissioner Dr. Royal S. Copeland has taken the unusual method of calling on the district leaders to use their party machinery to hunt out influenza cases. A statement issued by the Public Health Committee of the New York Academy of Medicine asserts that more vigorous measures should be taken by the health department in its campaign against Spanish influenza, but declares that there is no occasion for undue alarm on the part of the public, as only 2 per cent. of the population has been affected thus far. The committee strongly endorses the educational campaign being carried on by the health authorities here and elsewhere, and predicts that the epidemic will begin to decline in from two weeks to a month. Precautionary measures are recommended, many of which the health department is already enforcing. The most serious phase of the situation is the shortage of nurses. It is said that 5,000 nurses are needed at once. To meet this demand a Nurses' Emergency Council has been formed through which the Red Cross is making a house to house canvass for women with nursing knowledge. Reports from the state board of health show that, October 10, there were 31,217 cases of influenza in the state. The state laboratory is preparing an anti-influenza serum which will be ready for distribution in a few days.

## OKLAHOMA

**Personal.**—Dr. Albert C. Hirshfield, assistant city physician of Oklahoma City, is said to have resigned.——Dr. Nelson P. H. White, Clinton, was seriously injured when his automobile was struck by a train at a grade crossing, 3 miles east of Clinton.——At a recent meeting of the state medical board of Oklahoma City, Dr. B. L. Denison, Garvin, was elected president.

**Tuberculosis Conference.**—The annual meeting of the Oklahoma Association for the Prevention of Tuberculosis and the State Public Health Conference was held in the Chamber of Commerce, Oklahoma City, September 24. Two hundred delegates were present, and the following officers were elected: president, E. K. Gaylord, Oklahoma City (reelected), honorary vice president, Dr. John W. Duke, Guthrie (reelected); vice presidents, Drs. Lewis J. Moorman, Oklahoma City, Mr. John Moffitt, Muskogee, Mr. John Woodward, Tulsa, and Mr. John W. Sunder. It was voted to change the name of the association to the Oklahoma Tuberculosis Association.

## PENNSYLVANIA

**Epidemic in Schuylkill County.**—According to a special telegram to the *Public Ledger* on October 12, there were 11,000 cases of influenza in Schuylkill County, of which 1,600 were in Pottsville. Many physicians from other localities, making a total of seventy, were getting the situation in hand. In addition fifty physicians have been ordered there from the U. S. Medical Corps at Allentown. In Minersville the epidemic raged among the foreign born population and a number of men from the United States Medical Corps were ordered to take charge there. Coal production in this place has been greatly curtailed.

### Philadelphia

**Governor Appeals for Nurses.**—October 11, Governor Braumbaugh issued a proclamation calling on nurses to volunteer their services during the influenza epidemic, especially nurses engaged as companions in the homes of the wealthy.

**Influenza Epidemic.**—Lieutenant-Commander Plummer, surgeon in charge of the Fourth Naval District, in which the first cases of epidemic influenza appeared in this city, reported, October 11, that the district was practically cleared of the disease. There were but twenty-six cases of influenza and three of pneumonia, of these only sixteen were within the district, the other ten having been taken from arriving ships. A chart in the surgeon's office shows that the epidemic began in the district on September 12, the peak was reached September 18 and that there was a steady decline since that date. The death rate for the week ending October 12, in Philadelphia was the highest ever recorded—3,234, of which 2,635 were caused by influenza and pneumonia. The highest death rate of any previous week was 1,191 on October 5, when the death rate was 35.26 per thousand. The rate for the week just passed reached 95.74 per thousand. Five nurses have died from influenza at the Philadelphia General Hospital since October 8.

**Personal.**—Dr. Cyrus L. Stevens, Athens, the president elect of the Medical Society of the State of Pennsylvania, who was stricken with pneumonia during the convention of the Medical Society, in this city, is convalescing at the University Hospital.——Dr. Elmer G. Whinna has just completed twenty-five years of continuous service as physician-in-charge of the Philadelphia Home for Infants.——Drs. Isaac F. Stover, Philadelphia, and Louis Weinstock, New York, are recovering from pneumonia. Dr. Stover is outside physician of the Germantown almshouse.——Dr. James F. Carrell is recovering from influenza at the St. Joseph's Hospital.——Dr. Donald Guthrie, chief surgeon at the Packer Hospital, Sayre, Pa., is in the University Hospital suffering from pneumonia following influenza.——Dr. Harrington S. Dickinson has been appointed assistant school medical inspector.——Dr. James M. Anders, who has been ill with influenza, has recovered.——Dr. Eugene Swayne, Bristol, who mysteriously disappeared last week, returned to Bristol, October 11. He had been working among influenza patients for a number of days and had gone to Philadelphia for a conference, collapsed on the train and was taken to the Frankford Hospital, where he was unconscious for four days before his identity could be determined.

## UTAH

**New Officers.**—At the twenty-fourth annual meeting of the Utah State Medical Association held in Salt Lake City, September 10 and 11, Dr. George W. Middleton, Salt Lake City, was elected president and Dr. William L. Rich, Salt Lake City, secretary.

**Personal.**—Dr. Harry N. Mayo, Salt Lake City, has resigned as a member of the state board of medical examiners to enter the military service.——Major Walter C. Chidester, M. C., U. S. Army, has been assigned to duty as chief of the surgical staff of the reconstruction hospital, Fort Douglas.

## VERMONT

**Personal.**—Dr. John H. Woodruff, Barre, has been appointed medical aide to the governor of Vermont, to succeed Dr. John B. Wheeler, Burlington, who has resigned.——The Caledonia County Medical Society gave a farewell dinner at St. Johnsbury for Lieut. Robert H. Burke, who has been ordered to Camp Upton, and presented him with a wrist watch and a masonic ring.——Dr. Fremont Hamilton, Brattleboro, was seriously injured by the overturning of his automobile, August 31.——Dr. Chester M. Ferrin, Burling-

ton, has been elected Surgeon-General of the Grand Army of the Republic.

## WASHINGTON

**Hospital at University.**—A plan to build a hospital on the campus of the University of Washington, Seattle, to cost a million dollars and which is to form the nucleus for a medical department of the university, was proposed and endorsed at the meeting of the Kings County Medical Society.

**Law Violators.**—Dr. William G. Emonds, Seattle, is reported to have been found guilty, September 24, of issuing a prescription for liquor. He is said to have been convicted twice in 1916, and once in 1918, of unlawfully issuing prescriptions for liquor.——Dr. Thomas R. Loer, Seattle, is said to have been found guilty of unlawful issuance of prescriptions, September 6, and to have been fined $200.

## WISCONSIN

**State Society Meeting.**—At the seventy-second annual meeting of the State Medical Society of Wisconsin, held in Milwaukee, October 2 to 4, the following officers were elected: president-elect, Dr. Dennis J. Hayes, Milwaukee; vice presidents, Drs. J. Sothoran Keech, Racine, Luther A. Potter, Superior, and Herman Gilbert, Madison; Councilor for the first district, Dr. Hoyt E. Dearholt, Milwaukee; member of the committee of public health and instruction to succeed Dr. John M. Beffel, Milwaukee, Dr. William H. Washburn; delegate of medical education, to succeed Dr. Louis M. Warfield, Dr. Louis F. Jermain, Milwaukee; delegates to the American Medical Association, Drs. Horace M. Brown, Milwaukee, and L. Rock Sleyster, Waupun; alternates, Dr. John F. Pember, Janesville, and Louis F. Jermain, Milwaukee, and acting councilor for the seventh district, during the absence of Dr. Edward Evans, in France, Dr. Wilbur T. Sarles, Sparta.

## CANADA

**Influenza.**—The influenza has seized Montreal, Ottawa, Toronto, Hamilton, and other Canadian cities in a firm grip. Hotels are being turned into improvised hospitals in Toronto for the accommodation of patients, the hospitals being filled to overflowing. There is a great demand for nurses, not only among soldiers but among civilians. Many deaths have been reported, particularly from pneumonia.

## GENERAL

**Meeting of American Public Health Association.**—At the request of the Surgeon-General of the U. S. Public Health Service, the Officers of the American Public Health Association announce the postponement of their annual meeting, which was to have been held in Chicago October 14-17, to December 9-12, at the same place. This action was deemed advisable especially because it was considered unwise to ask sanitarians to leave their posts under present health conditions.

**Cancellation of Meeting of Clinical Congress of the American College of Surgeons.**—Information has been received, under government frank, that "owing to the influenza epidemic prevalent throughout the country and the resultant increased demand for the services of doctors in their home communities, it has been considered advisable by the executive committee of the General Medical Board to cancel the meeting scheduled to be held in New York City at the Waldorf Astoria, October 20. The regular annual session of the Clinical Congress of the American College of Surgeons, arranged for the week beginning October 21, has been cancelled for the same reason."

## FOREIGN

**Austria Forbids the Export of Drugs to Hungary.**—Austrian telegram advices from Vienna state that Austria has forbidden the exportation of pharmaceutical supplies to Hungary. The Hungarian government has, therefore, been compelled to confiscate all supplies that are found in pharmacies.

**Personal.**—Dr. Maurice F. Egan, formerly American minister to Denmark, had bestowed on him the grand cross of the Order of Dannebrog by King Christian.——Dr. William White, Pittsburgh, has been placed in charge of the Italian Tuberculosis Unit, recently organized by the American Red Cross.

**Collective Inquiry on the By-Effects of Arsphenamin.**—The *Hospitalstidende* quotes a German weekly to the effect that so many reports have been made on by-effects from arsphenamin that a Cologne medical society, the Allgemeine ärztliche Verein, has appointed a committee to collect data on the subject. The German Dermatologic Association is represented on the committee by Professor Hoffmann, and physicians in general are asked to report all instances of by-effects in their practice to the committee, Rudolfplatz 3, Köln.

**Deaths in the Profession Abroad.**—Dr. **M. Jatta**, of the Italian Public Health Service, in charge of the campaign against malaria in the province of Puglia.——Dr. **F. Arena**, professor of chemical analysis at the University of Naples.——Dr. **F. Jeannel**, dean and professor of surgery at the University of Toulouse, aged 68, author of numerous articles on surgery and of a manual on surgery of the intestines.——Dr. **E. Fraenkel**, a prominent Danish practitioner of the Slagelse province.——Dr. **J. R. Semprun**, professor of clinical neurology at the University of Buenos Aires, senator, consejero de la Facultad de Ciencias Medicas, director of the Asistencia Publica, and president of the Comision Nacional de Bellas Artes, in addition to his work as chief of the Hospital Muñiz and detention hospital.

**"New and Nonofficial Remedies" in France.**—The *Paris médical* now falls into line with some other French medical periodicals in describing for its readers the work and ideals of the Council on Pharmacy and Chemistry and the book "New and Nonofficial Remedies." It reproduces entire Professor Puckner's letter on the subject to the *Journal de pharmacie et de chimie* relating that he had followed with interest the recent discussion in the Académie de médecine relative to regulating the sale of proprietaries. A whole page in the *Paris médical* is devoted to a translation of the preface to N. N. R., and the fact is emphasized that of all the proprietaries indexed only five or six are of French origin while over half of them are of German production. A previous notice of the kind was summarized in THE JOURNAL, June 8, 1918, p. 1783.

**In Honor of Cortezo.**—The director of the *Siglo Medico*, Excmo. Señor Don Carlos María Cortezo, has been a prominent figure in medical and political circles in Spain for many years, and has occupied high posts in the state, minister of public instruction, senator, etc. As already mentioned in these columns, the highest center of national culture, the Academy of Language, recently elected him to membership, and his friends on this occasion have opened a subscription for the purpose of offering him, it is said, "a homage worthy of his name and high position." The treasurer of the fund is Dr. J. Sarabia, Velasquez 5, Madrid. The dean of the medical department of the University of Madrid, Professor Recasens, initiated the movement in appreciation of Cortezo's constant efforts to promote the moral and material welfare of the profession, and particularly for his plan for the support and education of the orphans of physicians, the new Colegio de Huerfanos at Madrid.

## SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

**Fiftieth Professional Anniversary of Uribe.**—On the initiative of the medical society of Medellin, Colombia, the profession throughout the whole country, Colombia, joined in doing honor to Dr. F. A. Uribe of Medellin on the occasion of his "golden wedding with science." He is a member, with three other physicians, of the senate of the republic. The lower house has about fourteen medical members.

**Medical Society and Journal of Northern Brazil.**—In 1899 the physicians of northern Brazil organized the Sociedade de Medicina e Pharmacia do Amazonas, and founded the *Revista Medica do Amazonas*. Neither the society nor its journal lasted more than a few months, but ten years later the *Amazonas Medico* was founded. This, too, survived only for ten issues. The medical organization was revived last year, and it has now started anew the publication of the *Amazonas Medico*, and both seem to be entering on an era of successful and fruitful work. The *Amazonas* starts on its second phase as a quarterly, under the editorial supervision of Drs. A. da Matta, J. de Moraes and four others. An appeal for exchanges is printed in seven languages: Address Caixa Postal 40 A, Manaos. The first issue is indexed in the Current Literature Department.

## CORRECTION

**Captain Morehouse Living.**—THE JOURNAL last week carried the report of the death of Capt. Cecil Goodard Morehouse, Waukon, Iowa. We are informed that a cablegram received by Mrs. Morehouse states that Captain Morehouse was severely wounded on July 16, but recovered and is now at work again.

## MEXICO LETTER

Mexico City, Sept. 23, 1918.

### Popular Scientific Lectures

The alumni of the Escuela Medico Militar have organized a series of lectures on scientific subjects to be delivered by the professors of the school. They are held in the hall of the National Museum, and the three that have already been delivered have been very well attended. One was by Dr. E. Cervera, professor of bacteriology. His subject was "The Therapeutics of Yesterday and Today." Dr. E. Ramirez, professor of medical chemistry, spoke on the present status of medical science, and Sr. I. Ochoterena, professor of histology, on the relations between comparative neurology and human psychology.

### Friends of France

A society has been organized among the leading intellectuals of the country. It is called the Amigos de Francia, and includes Dr. E. G. Martinez, physician and poet, who is president of the society, Dr. C. Barajas, author; Dr. J. Urueta, former minister of foreign affairs; Dr. L. M. Rojas, director of the daily paper, the *Universal;* Dr. F. Canale; D. C. D. Dufoo, economist; Dr. M. Flores and E. Pallares, journalists; Dr. A. Pruneda, director of the Escuela Nacional de Comercio, Lic. J. S. Azcona, and a number of others.

### The Blind

A committee of which Dr. J. Terres is president has been organized to prevent the spread of blindness and to ameliorate the condition of the blind. It has inaugurated its work by publishing articles in the daily papers to enlighten the public on the dangers of smallpox as a frequent cause of blindness, and the necessity for warding it off by vaccination and revaccination. The importance of using exclusively animal vaccine for the purpose has been emphasized, as this eliminates the possibility of inoculation with syphilis by this means (since unfortunately even yet some physicians employ humanized vaccine). Instructions were also given how vaccination should be done correctly. The committee announced further that it will present tubes of vaccine lymph to all who apply.

### The Homeopaths Appeal

The governor of the state of Puebla has issued a decree prohibiting the practice of medicine to the homeopaths in that state, as there they are generally very ignorant persons. They appealed to the district judge, alleging that the governor's order violated their constitutional rights. The judge denied their appeal, and they have carried their appeal to the supreme court of the nation. This high tribunal has not yet handed down its decision in the matter.

### Quadruplets

The wife of a citizen of Merida, in Yucatan, was recently delivered of four children at one birth, three boys and one girl. Mother and children are in the best of health, according to the local papers.

### Quarantine Against Guatemala

The Departamento de Salubridad has been officially informed that yellow fever has disappeared from the state of Guatemala, where there have been cases during the last months. An official survey is to be made at once to verify this notice so that the quarantine between Guatemala and Mexico can be suspended, as it materially hampers commerce between the neighbor countries.

### Bazaar for Hospital

A *kermesse* was organized, September 15, for the benefit of the American Hospital. It was held in the halls of the Eliseo, founded by the United States colony, in this city. It was crowded with citizens and subjects of the Allied nations and leading members of Mexican society, and a large amount was collected for the improvements needed at the hospital.

### Influenza

About 50 per cent. of the sailors on the Argentine man of war at present in Vera Cruz waters, and those that had come to this city for a visit have been affected with influenza, but fortunately it has been mild to date. It is remarkable that among the inhabitants of the city influenza has not assumed an epidemic character. The epidemic among our Argentine guests is ascribed to the influence of the altitude of the city and the relative drop in temperature noted at this time of the year. The sailors affected were isolated and properly cared for

## PARIS LETTER

Paris, Sept. 26, 1918.

### Antidysentery Measures

A number of cases of dysentery, several of which terminated in death, have occurred in Paris, and in the *département* of the Seine. In order to avoid a spread of the disease, the prefect of police has asked the people to conform strictly to certain regulations, such as, to use only milk that has been boiled for at least five minutes; not to put ice in any drinks; to protect food from flies, which should be destroyed in every possible way.

### Biology of War

The Société de biologie has arranged to hold a series of meetings devoted to discussion of the biology of war. These meetings will be held monthly. The first meeting will take place October 19 and will be given over to the discussion of shock and anesthesia during shock. At the second meeting will be considered infection in the army, and antiseptics at the third.

### Brazilian Medical Mission

An important Brazilian medical mission has arrived in Paris. It consists of 180 persons and is in charge of Dr. Nabuco de Gouvea, deputy. The physicians composing the mission will go to the various French hospitals where they will remain until the Brazilian hospital of 500 beds has been completed in the war zone. Dr. de Gouvea has under his direction eight general *chefs de service*, sixteen *chefs d'infirmeries* or *laboratories*, and forty-one *auxiliaires* for the surgical service proper. The pharmacy staff consists of a *chef de service* with two assistants and three *auxiliaires*. There is also a *service d'intendance*, or clerical force. A corps of nurses and a section of the navy sanitary (medical) corps accompany the mission.

### Workshop for Franco-American Wounded Soldiers

In Paris there is an *atelier du blessé franco-américain* (at the Grand Palais) where wounded soldiers and the invalided, as well as men on furlough may find employment that is both remunerative and suitable for them. The government, appreciating the work done since the beginning of the war, by Madam Nicolas Eliasco, who is in charge of *l'Atelier du blessé franco-américain*, has conferred on her the medal of the "Reconnaissance française."

### A New French Red Cross Stamp

The postal department has on sale a new French Red Cross stamp. On one side of this stamp is the picture of a nurse against a background of ruins, from which unfortunate refugees are being taken by an automobile ambulance. On the other side is a small boat carrying to the hospital ship wounded and sick soldiers who are being brought back from the Orient.

## LONDON LETTER

London, Sept. 10, 1918.

### A State Medical Service

In recent years much socialistic legislation has taken place, particularly in regard to matters of health. The outstanding instance, for example, is, of course, the insurance act. As pointed out in previous letters, this act is certain to be developed in many directions. Its defects, such as the failure to provide for specialist advice or hospital treatment, are indisputable. About three fourths of physicians are on its panels and therefore are part-time state officials. The burning question now is whether whole-time physicians should be employed. Advanced social reformers are strongly in favor of this proposal, but it is not acceptable to any except a small socialistic minority of the medical profession. The great changes brought about by the war are being used as an argument in favor of the proposal. It is said that our vast armies are well cared for by a state medical service and that when the physicians return to civil practice they will have been admirably trained for a similar service. Moreover, many who in consequence of their patriotism have sacrificed their practices will thus be provided for. Though not officially announced, there is reason to think that a scheme for a whole-time medical service has already been drawn up whereby there are to be five classes corresponding with army ranks: Class 5, lieutenant; Class 4, captain; Class 3, major; Class 2, lieutenant-colonel, and Class 1, colonel. The commencing pay for the fifth class, equal to the lieutenant, is $2,000 a year, with promotion to the fourth class at $2,500, third class

at $3,750, second class at $5,000 and first class, equal to the full rank of colonel, $7,500 a year. The second and first classes will remain at these amounts, but for the lower classes there will be yearly increments, for the fifth class of $75 a year until a maximum of $2,500 is reached, and for the fourth class a rise of $125 a year until the third, or major's, class, when the annual increase will be $250 a year, till $5,000 is reached. A novel feature of the scheme is that promotion can be obtained from one class into another only by examination. Thus, unless he passes an examination, the fifth class man will never get above his $2,500 a year. There must be four years interval between the fifth and fourth classes and eight years between both the fourth and third, and the third and second, from which will be chosen the highest class at $7,500 a year. There will be no necessity for a vacancy to exist before a man can qualify for a higher class and pay, at any rate up to the third or major class. The higher classes will deal chiefly with administrative work and with the giving of consultative advice. There will be no expenses to be paid out of the physician's salary; everything—drugs, appliances, clinics and traveling expenses—will be paid for by the government. Men will be expected to look after the health of between 2,000 and 3,000 persons. It will not be necessary to live in the big houses at present in vogue. Any sized house and in any adjacent locality will do, as long as it has telephonic communication. On the argument that either a patient is fit for work or unfit so he will be expected to attend at the office in the morning, evening consultations will be discontinued, and fewer visits paid than is the case at present. Work out of hours, that is to say, after 5 o'clock, will be taken by the juniors, who will take duty in rotation. Localities will be mapped out with exact boundaries, and in those areas all residents, whether rich or poor, will be entitled to medical benefit. All hospitals will be taken over by the government. There will probably be no compensation for the capital value of practices except in cases of unusual hardship; but those entering the scheme will have at 60 pensions, equal to two thirds of their salary, though perhaps they may go on practicing after that date. As a beginning, men who have been in practice for many years and are otherwise qualified will be enabled to enter the service at a higher class than the lowest. Full consultant and specialist services will be provided; men will be appointed to them after taking a special course and passing an examination in the particular work. They will receive higher pay. Study leave up to six months will be granted. Holiday leave will be the same as in the civil services—a month each year. All local lay control will be done away with, the service being under a central board of commissioners consisting of: (1) members appointed by the government from outside the medical profession; (2) members appointed by the government from men at the head of the medical profession, and (3) members elected by those medical men serving in the scheme.

One organized body of physicians, the Medico-Political Union, which principally consists of panel physicians (indeed, it was originally formed by them and then termed the Panel Medico-Political Union) is strongly opposing the scheme. The union was formed because the British Medical Association was not considered sufficiently representative of panel interests and its action not all that could be desired. It may be remembered that at the time of the passing of the insurance act the association was divided into two camps, for and against the act, and considerable ill feeling was aroused that has not entirely subsided. Unlike the association, the Medico-Political Union is registered as a trade union. It thus has the advantage in case of a medical "strike" that its members can interfere with those that do not strike without being open to a charge of "conspiracy," "wrongfully inciting" others to leave their employment and of "libel." Moreover, its accumulated funds cannot be attached. The union is opposed to the whole-time medical service on the grounds that: 1. The most intimately human of all professions enters into confidences in every phase of family life that would not be possible in the case of a paid official. 2. Free choice of physician (a strong point under the insurance act) would no longer be possible and the incentive of fair competition would be abolished, allowing the slowest mover to set the pace. 3. The pay, though excellent and attractive for newly qualified physicians, is not sufficient for experienced ones. 4. Any scheme brought forward with the hope of enlisting the support of physicians should compensate for the capital value of their practices.

### Interallied Food Control

Conferences have taken place between the food controllers of America, France, Great Britain and Italy with the object of organizing an interallied food council. A wheat commission sits in London which buys in America, Argentina, Australia and India, thus abolishing competition in neutral markets. It is intended to establish three other commissions, for meat and fats, oil-yielding grains, and sugar. The council intends to form reserves of cereals in America and Europe to guard against bad harvests. Our food controller has recently issued an order regulating the use of wheat, rye, barley and dredge corn for the feeding of animals. Grain fit for human consumption must not be given to animals; grain unfit for human consumption can be so used only under license, except in the case of small quantities not exceeding 10 hundredweight.

### Lectures on Shell Shock and War Neuroses

A course of instruction in shell shock and war neuroses, open to all medical officers of the British and American services and to civilian physicians is being given under the sanction of the War Office at the Maudsley Neurological Clearing Hospital, Denmark Hill. Applications for admissions are to be made to Brevet Lieut.-Col. F. W. Mott, M.D., F.R.S. The course consists of daily instruction and practice in the diagnosis and treatment and systematic lectures and demonstrations twice weekly. These are on: 1. The anatomy, physiology and pathology of the nervous and muscular systems applied to the diagnosis, prognosis and treatment of shell shock and war neuroses. 2. The physiologic and pathologic conditions underlying shock—emotional, commotional and surgical. 3. The methods of examining cases of functional nervous disorders (hysteria, neurasthenia and psychoses) and the determination of fitness for military service. 4. The methods of differential diagnosis of organic and functional disease and the combined condition. 5. The diagnosis of conscious simulation (malingering), unconscious simulation and exaggeration. 6. The general principles of treatment of functional diseases of the nervous system. 7. General aspect of the surgical side of neuromuscular disabilities. 8. General principles of psychology as applied to war neuroses and shell shock.

### Another American War Hospital in Great Britain

The American Navy has taken over another hospital, which is established in the East Coast of Scotland. The American staff consists of twenty-two medical officers, sixty-three nurses, paymaster, clerical staff, orderlies and artisans. It was organized at Los Angeles by Dr. Rea Smith, surgeon, U. S. Navy, and the commanding officer is Dr. C. M. Jevalin, U. S. Navy. The equipment has been brought from America. The hospital will receive not only Americans but also British patients from both the army and the navy.

## Marriages

LIEUT. LEE FRANKLIN TURLINGTON, M. C., U. S. Army, Birmingham, Ala., on duty at Camp Greenleaf, Fort Oglethorpe, Ga., to Miss Olivia Johnston White of Lynchburg, Va., September 17.

LIEUT. MAURICE RASCHBAUM, M. C., U. S. Army, New York City, on duty at Camp A. A. Humphreys, Accotink, Va., was married to Miss Justine Todd of New York City, March 27.

LIEUT. ROBERT BYRON GILES, M. C., U. S. Army, New York City, to Miss Fredericke Kröger of Spuyten Duyvil, New York City, September 12.

LIEUT. VIVIAN JOHN NEALE, M. C., U. S. Army, to Miss Helen Theresa Douaire, both of Chicago, at Des Moines, Iowa, September 11.

GEORGE WILLIAM SCHAEFER, Bridgeport, Ohio, to Miss Corynne Price Bush of Wheeling, W. Va., at Columbus, Ohio, August 29.

LIEUT. COMMANDER HOWSON WHITE COLE, JR., M. C., U. S. Navy, to Miss Mary Constance Wiggins, at Brooklyn, September 9.

LIEUT. RAYMOND WILLIAMS LEWIS, M. C., U. S. Navy, to Miss Alice Gregory Cragin, both of New York City, October 3.

CHARLES J. STAMBAUGH, Reidsville, Pa., to Miss Florence P. Newton of Lewistown, Pa., at Harrisburg, September 25.

FREDERICK CONRAD SCHADT, Williamsburg, Iowa, to Miss Louise Setzer of Middle Amana, Iowa, recently.

CLAUDE VERNET DAVIS, Cleveland, to Miss Laura Sheridan of Connellsville, Ohio, September 21.

## Deaths

**Capt. Lorenzo Burrows, Jr., M. C., U. S. Army,** Buffalo; College of Physicians and Surgeons in the City of New York, 1889; aged 51; a Fellow of the American Medical Association and the New York Academy of Medicine; ophthalmologist to the Buffalo General Hospital; a specialist in diseases of the eye; on duty with Buffalo Base Hospital No. 23; who had been in France since October, 1917; died from pneumonia, September 17.

Died in the Service
IN FRANCE
CAPT. LORENZO BURROWS, JR., M.C., U. S. ARMY, 1867-1918

**Lieut. Arthur Lewis Beyerlein, M. C., U. S. Army,** Chicago; University of Illinois, Chicago, 1912; aged 30; a Fellow of the American Medical Association; who was in the government service in the Canal Zone from 1910 to 1916, and was later on duty in the orthopedic department of the Walter Reed General Hospital, Washington, D. C.; died in that institution, October 10, from bronchial pneumonia, following influenza.

**John T. Gilmour,** Toronto, Ont. (license, Ontario, 1876); aged 63; for nearly twenty years warden of the Ontario Reformatory for Men; an active member and once president of the American Prison Association, and later parole commissioner for the provincial penal institutions; one of the best known administrators of penal institutions of America; died suddenly at his home, July 29, from heart disease.

**Act. Asst. Surg. Charles B. Gruver, U. S. P. H. S.,** Waco, Texas; formerly of Rosman, N. C.; University of Maryland, Baltimore, 1902; aged 40; a member of the Medical Society of the State of North Carolina; at one time president of the Stroudsburg (Pa.), board of health; a member of the staff of the health department of Waco; died in a sanatorium in that city, October 7, from pneumonia.

**Ludson Worsham,** Evansville, Ind.; New York University, New York City, 1879; aged 63; a Fellow of the American Medical Association; surgeon of the Alaska Commercial Club from 1882 to 1884; chief surgeon of the Evansville and Terre Haute, and Evansville and Indianapolis railroads since 1896; at one time councilman at large; died at his home, September 29, from pneumonia.

**David L. Haight,** New York City; College of Physicians and Surgeons in the City of New York, 1864; aged 79; a member of the United States Sanitary Commission in 1862, and during the remainder of the Civil War assistant surgeon at the Douglas Hospital, Washington, D. C.; died at the Rockaway Country Club, Cedarhurst, L. I., September 30.

**Lieut. Justin A. McCarthy, U. S. N. R. F.,** Lawrence, Mass.; Jefferson Medical College, 1918; aged 25; a Fellow of the American Medical Association; who came to New London, Conn., to assist in the treatment of influenza at the base hospital, died at the local hospital, New London, September 27, from pneumonia, following influenza.

**Clinton E. Stark,** Norwich, Conn.; New York Homeopathic Medical College, New York City, 1878; aged 64; once president of the Connecticut State Homeopathic Medical Society; a member of the board of trustees of the Norwich State Hospital since its institution; died at his home, September 26, from pneumonia, following influenza.

**Russell H. Dean,** Jacksonville, Fla.; Tulane University, New Orleans, 1875; aged 63; once vice president of the Florida Medical Association and president of the Duval County Medical Society and of the Lake County (Fla.) Board of Health; died at his home, September 28, from cerebral hemorrhage.

**Theodore Fessler,** Portland, Ore.; University of Oregon, Portland, 1904; aged 47; at one time a Fellow of the American Medical Association; great sachem of the Independent Order of Red Men for Oregon in 1911; died in the Good Samaritan Hospital, Portland, September 27, after a surgical operation.

**Capt. Charles Alton Sturtevant, M. C., U. S. Army,** Manchester, N. H.; Boston University, 1899; aged 43; a Fellow of the American Medical Association; medical officer of the Seventy-Fourth U. S. Infantry; died at Camp Devens, Ayer, Mass., September 24, from pneumonia, following influenza.

**Asst. Surg. Hadley Howard Teter, Lieutenant (Junior Grade), U. S. Navy,** Cleveland; Ohio State University, Columbus, 1916; aged 27; is reported to be one of the missing from the *U. S. S. Tampa*, which was torpedoed in foreign waters, September 26, while escorting a convoy.

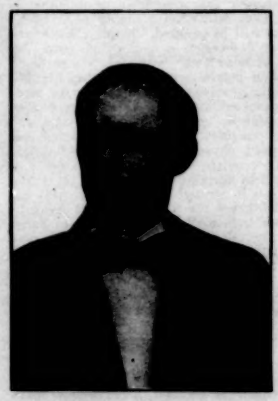
**Orion Vassar Wells,** Westford, Mass.; Harvard Medical School, 1906; aged 37; a Fellow of the American Medical Association; first lieutenant, M. C., Massachusetts State Guard, and assigned to duty with the Nineteenth Infantry; died at his home, October 4, from pneumonia.

**Edward Hastings Wiswall,** Wellesley, Mass.; Boston University, 1887; aged 57; for five years assistant physician at the Westboro Insane Hospital; superintendent of the Wellesley Sanitarium; a member of the local school committee for twelve years; died at his home, October 7.

**Arthur Kraft Petery,** Norristown, Pa.; Medico-Chirurgical College of Philadelphia, 1908; aged 32; a Fellow of the American Medical Association; a member of the staff of the Norristown State Hospital; died in that institution, October 2, from pneumonia, following influenza.

**Robert E. Moss,** Riverside, Calif.; Marion-Sims College of Medicine, St. Louis, 1897; aged 45; a member of the Medical Society of the State of California, and president of the Riverside County Medical Society; died at his home, September 27.

**Lieut. Pressly Robinson Brown, M. C., U. S. Army,** Swepsonville, N. C.; North Carolina Medical College, Charlotte, 1914; aged 34; a Fellow of the American Medical Association; is reported in the *Official Bulletin* of July 15 to have been killed in action in France.



Died in the Service
IN FRANCE
LIEUT. PRESSLY R. BROWN, M. C., U. S. ARMY, 1884-1918

**Capt. Philip John Keiser, M. C., U. S. Army,** North Bend, Ore.; University of Oregon, Portland, 1914; aged 32; a Fellow of the American Medical Association; assigned to duty with the Thirtieth U. S. Engineers; was killed in action in France, in line of duty, July 13.

**William Binder Shick,** Philadelphia; Jefferson Medical College, 1907; aged 39; a Fellow of the American Medical Association; a specialist of diseases of the ear, nose and throat; surgeon to the Jewish Hospital; died, October 3, from pneumonia, following influenza.

**Elbert Ellsworth Heaton,** Lancaster, Mo.; formerly of Centerville, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1896; aged 46; is reported to have died in his office, October 4, from a gunshot wound, self-inflicted, it is believed, with suicidal intent.

**George Wells,** Annapolis, Md.; College of Physicians and Surgeons in the City of New York, 1867; aged 74; for several years chief of the medical staff of the Annapolis Emergency

Hospital; clerk of the court of Anne Arundel County; died at his home, September 29.

**George A. Jenninga,** Burlington, N. J.; Baltimore Medical College, 1902; aged 46; a member of the Medical Society of the State of New Jersey; athletic director of the public schools of Burlington; died, September 30, from pneumonia, following influenza.

**William Armstrong DeWitt,** Blossburg, Pa.; University of Pennsylvania, Philadelphia, 1908; aged 32; a Fellow of the American Medical Association; chief surgeon of the Blossburg State Hospital; died at his home, October 1, from pneumonia.

**Lieut. Philip Melton Kyser, M. C., U. S. Army,** Birmingham, Ala.; Vanderbilt University, Nashville, Tenn., 1910; aged 30; a Fellow of the American Medical Association; on duty at Camp Lee, Va.; died in that place, recently, from pneumonia.

**Lieut. John Riley Lewis, M. C., U. S. Army,** Gainesville, Texas; Fort Worth (Texas) University, 1912; aged 31; a Fellow of the American Medical Association; on duty at a training camp in Long Island, N. Y.; died at the camp, September 25.

**Thomas Francis Leen,** Boston; Harvard Medical School, 1901; aged 43; a Fellow of the American Medical Association; a specialist in internal medicine; formerly a member of the Boston school committee; died at his home, September 16.

**Ernest Albert D. Watson;** Pittsburgh; Howard University, Washington, D. C., 1909; aged 40; a colored practitioner, born in Jamaica, British West Indies; died at the West Penn Hospital, Pittsburgh, September 18, from acute nephritis.

**Hyman Cohen,** Boston; Harvard Medical School, 1918; aged 25; attached to the second medical service of the Boston City Hospital; died in that institution, September 30, from pneumonia, following influenza.

**John R. Cross,** Buxton, Iowa (license, Iowa, years of practice, 1886); aged 63; at one time a Fellow of the American Medical Association; was killed, October 1, in a grade crossing accident at Hamilton.

**Max Maurice Fladen,** New York City; University and Bellevue Hospital Medical College, New York City, 1909; aged 32; died at his home, September 30, from pneumonia, following influenza.

**Charles Vinton Mathewson,** Plainfield, N. J.; Harvard Medical School, 1878; aged 65; who retired several years ago to engage in the insurance business; died at his home, September 20.

**Omar Perlie Badger,** Boston; Harvard Medical School, 1918; aged 29; an intern in the Boston City Hospital; died in that institution, September 30, from pneumonia, following influenza.

**Joseph Wayne Tillson,** Cohay, Miss.; University of Tennessee, Nashville, 1899; aged 44; a Fellow of the American Medical Association; died at his home, June 10, from heart disease.

**Alexander Murdoch Polk,** Winthrop, Wash.; Jefferson Medical College, 1887; aged 55; formerly a practitioner of Conconully, Wash.; died at his home, September 18, from heart disease.

**William R. Black,** Bolivar, Ohio (license, Ohio, twenty-eight years practice, 1896); aged 71; mayor of Bolivar; a veteran of the Civil War; died at his home, September 21.

**John R. MacDaniel,** Arkadelphia, Ark.; Jefferson Medical College, 1867; aged 78; also a druggist; died at his home, September 18, from cerebral hemorrhage.

**John Flood,** Chicago; Bennett Medical College, Chicago, 1873; Rush Medical College, 1889; aged 68; died at his home, September 28, from pneumonia.

**Benjamin F. Severns,** Marion, Ohio; Eclectic Medical Institute, Cincinnati, 1886; aged 69; died at his home, September 24, from cerebral hemorrhage.

**George Roy Heaton,** Rock Mart, Ga.; Atlanta (Ga.) School of Medicine, 1911; aged 31; died at his home, September 21, from an overdose of poison.

**Leo Henry Rahling,** Chicago; Northwestern University Medical School, 1906; aged 36; died at his home, September 30, from bronchopneumonia.

**Vachel Thomas Lindsay,** Springfield, Ill.; Miami Medical College, Cincinnati, 1869; aged 75; died in the Springfield Hospital, September 20.

**William F. Elmendorf,** Buffalo; University of Buffalo, 1890; aged 64; died at his home, September 28, from spinal meningitis.

# *The Propaganda for Reform*

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

## PHILLIPS' PHOSPHO-MURIATE OF QUININE COMP.

### Report of the Council on Pharmacy and Chemistry

The following report on Phillips' Phospho-Muriate of Quinine Comp. has been adopted by the Council and authorized for publication.

W. A. PUCKNER, Secretary.

Phillips' Phospho-Muriate of Quinine Comp.[1] is sold by the Charles H. Phillips Chemical Co., New York. According to the published formula, each fluidrachm contains:

| | |
|---|---|
| Phosphoric Acid | 2 minims |
| Potassium Phosphate<br>Magnesium Phosphate<br>Calcium Phosphate<br>Ferric Phosphate | 2¼ grains |
| Quinin Muriate (equal to nearly ½ gr. Bi-Sulph.) | ¼ grain |
| Strychnin | 1/120 grain |
| Flavoring, Glycerin and Syrup, q. s. | |

Some typical claims made for the preparation are:

"With marked beneficial action upon the nervous system. To be relied on where a deficiency of the phosphates is evident."

" . . . brace those tired nerves and aid that worn stomach with Phillips' Phospho-Muriate of Quinine."

"The maintenance of a satisfactory blood pressure level free from intervals of depression may be accomplished by the use of Phillips' Phospho-Muriate of Quinine Compound in appropriate doses."

"The quantities of quinin and strychnin in this preparation are so well balanced that they relieve the depression and fatigue from mental or physical exertion, without the necessity of recourse to alcoholic stimulation."

"The other ingredients of Phillips' Phospho-Muriate of Quinine—phosphoric acid, and the phosphates of potash, magnesia, lime, and iron—are the most rational as well as convenient means of administering these tissue remedies, and of introducing phosphorus—the vitalizing constituent of the nervous system—into the organism."

The action of such a mixture as a whole is practically that of the sum of the actions of its constituents. The therapeutic action of strychnin and quinin are described in every textbook of therapeutics, but it is necessary to distinguish carefully between the various conditions in which these alkaloids have been used without discrimination, and those conditions in which they have been proved to be of value. While both have been widely used in a great variety of conditions, neither is of proved value in more than a distinctly limited range of diseases. The manufacturers of Phillips' Phospho-Muriate of Quinine Comp. seem to appeal to the less discriminating who use these alkaloids without any definite conception of exactly what they seek to accomplish with them. Quinin, although used by the uncritical in a host of diseases, has a definite field of usefulness in the treatment of malaria, both prophylactic and curative, but the required dose in the treatment of malaria is many times larger than that recommended in the Phillips' preparation. The claim that the "strychnin and quinin in this preparation are so well balanced that they produce a

1. The evolution of "Phillips' Phospho-Muriate of Quinine Comp." from "Phillips' Wheat Phosphates" may be interesting. Every one knows that therapeutics tends to fashions, and "Phillips' Wheat Phosphates" appears to have had its inception as the result of the observation that super-refined white flour contains less phosphates than the corresponding amount of wheat. It was assumed that such flour must be deficient in an essential constituent, and the Wheat Phosphates preparation was apparently designed to fill the want. It was exploited for the relief of numerous conditions that were supposed, without satisfactory evidence, to result from this deficiency. When iron, quinin and strychnin mixtures became the vogue a quarter of a century ago, it was only natural to ride on the wave of popularity and the already widely advertised "Wheat Phosphates" was further enhanced—commercially—by the addition of the iron, quinin and strychnin, the amount of alkaloid added being practically negligible. Those who are not familiar with the various phases of the phosphorus, phosphoric acid, lactophosphate, lecithin, nuclein and glycerophosphate propaganda are referred to a report of the Council on Pharmacy and Chemistry in THE JOURNAL A. M. A., Sept. 30, 1916, p. 1033.

mild, buoyant effect, so advantageous, instead of alcoholic stimulation, to relieve depression and fatigue from mental or physical exertion" is nonsensical, if, indeed, it is not mendacious balderdash.

Calcium and potassium have important functions in the body, but any deficiency that may arise is usually attributable to an inability of the body to utilize that which is supplied, for there is seldom any deficiency of these salts in the food, and when they are needed they are best supplied as simple solutions of the salts in appropriate doses without all of the other constituents of Phillips' Phospho-Muriate of Quinine Comp.

Phosphoric acid exerts practically the same actions as other mineral acids, hydrochloric being usually preferred for internal administration in certain forms of indigestion, aside from which they are seldom used as such.

In the more recent literature for Phillips' Phospho-Muriate of Quinine Comp., we find the attempt to utilize the well known craze about phosphorus, which has been through so many phases, every one of which has had its day and has been discarded.

The phosphoric acid and phosphates present in Phillips' Phospho-Muriate of Quinine are of no more value in nervous diseases than is simple sodium phosphate which does not require the addition of a host of other ingredients for its action. As a matter of fact, the phosphates of calcium and potassium present in a dose of Phillips' Phospho-Muriate of Quinine are probably devoid of appreciable effect in practically all conditions.

To pretend that one who suffers from physical and nervous exhaustion can be materially benefited by this mixture is sheer nonsense and is unworthy of a moment's consideration by a clinician who is called on to treat such patients.

Iron is useful in anemia, as every one knows. Iron has practically no other field of usefulness in therapeutics. When it is indicated it should be administered in a simple form, such as the pill of ferrous carbonate, for example, and not in a "shotgun" mixture that is quite as likely to do harm as good.

The claim that a satisfactory level of blood pressure can be maintained by Phillips' Phospho-Muriate of Quinine is mentioned only to condemn as the limit of impudent therapeutic claims. It is an insult to the intelligence of any practitioner to pretend that any known agent or combination of remedial agents can maintain a uniform blood pressure in any one of innumerable conditions.

In short, Phillips' Phospho-Muriate of Quinine Comp. is a complex and irrational mixture exploited by means of unwarranted claims. It is a survival of the old days of therapeutic chaos when impossible and fantastic chemical formulas were gravely published and as solemnly accepted without question, and also without the slightest understanding on the part of many; when the most eminent of practitioners did not hesitate to give glowing testimonials for lithia waters that contained no more lithium than ordinary river water; when no therapeutic claim was too preposterous to receive acceptance, no theory too nonsensical to justify the use of all manner of claptrap mixtures for all manner of conditions.

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**Contrasting Casualty Lists.**—The *Health Bulletin*, State Board of Health of North Carolina, has adopted the unique experiment of printing in its *Health Bulletin* the names of the boys from that state who have been killed or wounded in France and comparing it with lists of those killed at home by typhoid fever, those severely injured in the performance of duty, and those seriously injured through carelessness or ignorance in their home state. It is shown that in France, for this year up to August 1, eighty-six "Tar Heels" have given up their lives or have been wounded in battle. During the same period 1,379 citizens of the state have needlessly given their lives or suffered weeks of illness because of typhoid fever. The eighty-six who died or were wounded in France were in the performance of duty. The 1,379 who died or suffered in North Carolina from typhoid fever died or suffered from an absolutely preventable disease.

## Correspondence

### ABORTION AS A SEQUELA OF INFLUENZA

*To the Editor:*—In the epidemic of influenza now prevalent I have noticed that pregnant women are especially liable to die. They usually abort or contract the very pronounced type of pneumonia, with cyanosis, the lungs full of coarse, mucous râles, and death in from two to three days.

In Stroudsburg, where I assisted Dr. Angle, nearly every pregnant woman I saw died. Dr. Durham, who has just returned from a mining camp near Punxsutawney, reports a similar condition. I do not recall anything like this in previous epidemics and have seen no mention of the fact in this one.

*Bacillus abortus* of Bang is so closely allied to the influenza group that the question of their being identical is raised by these observations.

In Ziemssen's Encyclopedia, 1875 edition, in an article by Zuelzer, I find: "Pregnant women frequently suffer abortion. . . . This effect of influenza repeatedly verified in many epidemics . . . analogous phenomenon in other infectious diseases."

M. W. Ball, M.D., Warren, Pa.

### CONTRIBUTIONS FOR BELGIAN AND FRENCH PHYSICIANS

*To the Editor:*—I beg to acknowledge through your columns the following contributions in cash to aid the civilian physicians of Belgium and France when they again return to their looted offices. The prospect now is that they will soon be able to do so. Meantime the money that I have forwarded to Professor Depage in LaPanne and the Comité d'appui des réfugiés de professions libérales through the Belgian and French Relief Associations of this city are accumulating in bank ready to be used whenever it is possible to do so.

Including the prior contributions, the sum total that I have been able to forward is $2,624.88, and the estimated value of the instruments that have been forwarded amounts to $4,360.

I wish particularly to acknowledge the very generous contributions of Dr. Gifford and his partners in Omaha. They have contributed $1,000 of the entire amount. Dr. C. T. Faries of Narberth, Pa., also most generously gave $10 a month for eight months, when he entered the service.

I trust that the members of the profession will be willing now to give more largely than before because the need is urgent. The villainous destruction which the Huns are visiting on even every little village has wiped out practically everything that our civilian confrères ever had. They will resume their work with nothing but willing hands and warm hearts. It is up to us to help them out of their troubles.

SUBSCRIPTIONS IN CASH

| | |
|---|---|
| Dr. William G. Rowe, Pine Springs, Mo. | $ 5.00 |
| Dr. Clarence T. Faries Narberth, Pa. (fifth, sixth, seventh and eighth contributions) | 40.00 |
| Dr. H. Gifford and his partners, Drs. James M. Patton, W. F. Califas and John B. Potts, Omaha | 500.00 |
| Dr. Anna Odell, Detroit | 10.00 |
| Dr. Clyde L. Cummer, Cleveland | 5.00 |
| Dr. C. W. More, Eveleth, Minn (through Dr. John M. Robinson, Duluth) | 25.00 |
| | $585.00 |
| Additional interest | 6.54 |
| | $591.54 |

DONORS OF INSTRUMENTS

Dr. Alexis Dupont Smith, Philadelphia; Miss E. K. Bray, New York; sundry physicians through Dr. J. M. Robinson, Duluth, Minn.; Dr. Walter J. Freeman, Philadelphia; Widow of Dr. A. T. Clark, Shickshinny, Pa.; Dr. F. S. Spearman, Whiting, Iowa; Dr. Charles M. Montgomery, Philadelphia; Dr. W. Estell Lee, Philadelphia; Dr. C. L. Cummer, Cleveland; Dr. L. B. Pilsbury, Lincoln, Neb.

Messrs. Harvey R. Pierce & Co. have very kindly put these instruments in order and packed them for transmission to Europe.

W. W. Keen, M.D., Philadelphia.
Major, M. C., U. S. Army.

## ATTITUDE OF CHRISTIAN SCIENTISTS IN THE PRESENT EPIDEMIC OF INFLUENZA

*To the Editor:*—Your optimistic current comment (THE JOURNAL, Oct. 12, 1918, p. 1223) concerning the change in attitude of the public toward public health methods would be highly reassuring if it were true in the measure that the comment indicates. You say, "When health authorities place a ban on public gatherings, when they insist that the windows of public conveyances be kept open, when they insist on absolute quarantine in order to stop the spread of the disease, the public is ready to obey, and does obey to the *fullest* measure" (italics mine). Further, "Another feature is the confidence of the public in public health authorities, apparently the result of the intense education of the public in prophylaxis of disease which has been going on during the past decade."

I beg to call your attention to a special telegram to the Philadelphia *Public Ledger*, dated Boston, October 7, which reads thus:

> In connection with the influenza epidemic, the directors of the "Mother" Christian Science Church here announce that "the mind is a source of contagion" and that "ailments can contaminate only as diseased images are held before the thought and paraded before excited imagination preliminary to having them expressed on the body through fear and apprehension."
>
> They declare that "disease is being industrially promoted through the common avenue of mesferic [sic] wear," and quote Mrs. Eddy as follows:
>
> "At a time of contagious disease, Christian Scientists endeavor to rise into consciousness to the true sense of omnipotence of life, truth, and love, and this great fact, as Christian Science realized, will stop a contagion."
>
> *The church held its regular services Sunday, explaining that good rather than harm was effected. The health officials had asked churches to close during the influenza epidemic* [italics mine].

This sort of stuff is doubtless doped out in every Eddyite congregation in the United States, and even the least observing and he of dullest comprehension must have discovered that the following of this cult is large. I have been told that Chicago is a veritable hotbed of Eddyism.

Would it not be wise to bend some editorial energies, if any are available, to the scotching or killing of this skunk in lieu of complacently recording dubious impressions? Here at home the Eddyites have not been able to get by with their "activities" unchallenged.

C. B. BURR, M.D., Flint, Mich.

## ILL ADVISED REFERENCES TO TREATMENT IN ARTICLES ON PUBLIC HEALTH PROBLEMS

*To the Editor:*—The attached clipping is a part of a "syndicated article" that has appeared in a number of newspapers. It strikes me that this line of so-called information is wrong. In writing on any public health problem, the writer should avoid reference to treatment. The treatment of any particular disease should be decided by the physician in charge after he has examined the patient. It is not right to state baldly that "drugs are virtually impotent." The patient calls the physician for his own relief and benefit, and if he believes all of this article he will probably send to the drug store and buy his own aspirin. And, by the way, is this writer in the pay of the Bayer people and helping them to put across their advertising campaign? Self medication is now one of the great banes of the American people, and such articles, either in the public press or in board of health publications, are the greatest incentive to such "doping." A carefully considered statement on any medical subject is often misquoted both in the medical and the lay press, as instance the comment aroused by Osler's age limit and Bevan's talk on pneumonia some years ago, both of which are still wildly and widely misquoted in both lay and medical publications. No two cases of any acute infection can be treated in exactly the same manner; the age and surroundings of the patient, the condition of the heart, kidneys, lungs and other organs must be taken into consideration, and the very necessary steps taken to avoid dangerous and possibly fatal complications and sequelae. Aspirin may be dangerous or even fatal in some cases, as may other salicylates. Another bad effect of self medication is that a case improperly diagnosed as epidemic influenza will not be reported, and may be the starting point of a dangerous epidemic. In fact, a case so diagnosed may be almost any one of the infectious diseases. I have seen severe cases of smallpox diagnosed as grip in the early stages, and an epidemic start therefrom.

The authorized public health publications of many states and occasionally of the Public Health Service have been guilty of the actions of which I complain. I think these mistakes are largely due to carelessness on the part of these writers, and calling their attention to them will have a good effect. I was one time the state health officer of one of the Southern states, and know how easy it is to overlook important matters and to make mistakes of judgment.

F. B. YOUNG, M.D., Gering, Neb.

[COMMENT.—The clipping to which our correspondent refers reads:

> It should be remembered, too, in treating patients who have acquired "Spanish influenza," care and sanitation are the all-important points. Drugs are virtually impotent, although aspirin may be administered to relieve headaches and body pains. With proper attention the disease will run its course in three days and the patient fully recover in less than two weeks. Death seldom ensues, except through neglect.

No doubt it would be in the interest of public health and the public pocketbook were medicines taken only on the advice of physicians. The objections to the lay advertising of aspirin were thus stated by the Council on Pharmacy and Chemistry:

> The public does not know, as physicians do, that headaches are merely symptoms of other, sometimes very serious conditions, and that they are often the signal for the need of a thorough physical examination and diagnosis. It is true that they are often also the symptoms of very minor derangements, which will right themselves spontaneously; and that, in such cases, drugs like aspirin may give relief and may do no harm. The patient, however, is not educated to distinguish one class from the other, and therefore anything that tends to promote the indiscriminate use of such remedies as aspirin itself is not always harmless. Alarming idiosyncrasies are sufficiently common that the use of the first doses, at least, should require medical supervision.—EDS.]

# *Queries and Minor Notes*

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### PURCHASE OF MEDICAL OFFICERS' EQUIPMENT THROUGH QUARTERMASTER'S DEPOT

*To the Editor:*—In THE JOURNAL, October 5, you say that officers' uniforms are available through the quartermaster's department, one depot being located in Chicago. Will you please give me the address?

H. T. K., Joliet, Ill.

*To the Editor:*—I have been examined for a commission in the Army and expect to be commissioned soon. Will you please tell me if I can buy my uniform and equipment at cost from a quartermaster as provided in the last clause of the "Man Power Bill"? If so, can I get them from the quartermaster of any camp?

L. W. C., Franklin, N. Y.

ANSWER.—In THE JOURNAL, October 5, page 1142, appears an item relative to the furnishing of uniforms through various quartermasters' depots. The seven depots mentioned are at New York, Washington, Atlanta, Ga., Fort Sam Houston, Texas, San Francisco, Chicago and St. Louis. Officers desiring to purchase uniforms may communicate with the nearest quartermaster's depot. We are informed by the officer in charge of the quartermaster's depot at Chicago that they are authorized to sell to newly appointed officers, on presentation of the telegram notifying them of their appointment or commission, any articles on the list of goods furnished, at the prices and in the maximum quantities shown. The Chicago sales room is located in Bungalow A, Thirty-Ninth Street and Winchester Avenue. Newly appointed officers residing outside of Chicago may communicate by mail with this department, or with the nearest quartermaster's depot, and the proper forms and information relative to purchase of equipment will be sent to them. The list of equipment and prices is not available for general publication, but will be furnished by the quartermaster to any officer on application. It includes practically everything that the officer will require.

# Medical Education and State Boards of Registration

## COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 12-13. Sec., Regular Bd., Dr. T. J. Stout, Brinkley, Ark.; Sec., Eclectic Bd., Dr. C. E. Laws, 803½ Garrison Ave., Ft. Smith.

CALIFORNIA: Sacramento, Oct. 21-24. Sec., Dr. C. B. Pinkham, State Capitol, Sacramento.

CONNECTICUT: New Haven, Nov. 12-13. Sec., Regular Bd., Dr. C. A. Tuttle, 196 York St., New Haven; Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeopathic Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

MAINE: Portland, Nov. 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland, Me.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr. Walter P. Bowers, No. 1 Beacon St., Boston, Mass.

NEVADA: Carson City, Nov. 4. Sec., Dr. S. L. Lee, Carson City.

TEXAS: Dallas, Nov. 19-21. Sec., Dr. M. F. Bettencourt, Mart.

WEST VIRGINIA: Charleston, Nov. 19-21. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

### Minnesota June Examination

Dr. T. S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, June 4-7, 1918. The examination covered 15 subjects and included 80 written questions. An average of 75 per cent. was required to pass. Forty-one candidates were examined, all of whom passed. Six candidates were licensed through reciprocity. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| Northwestern University | | (1918) | 92 |
| University of Illinois | | (1918) | 89 |
| Boston University | | (1915) | 85 |
| University of Minnesota | (*) 86, 86, 86, 87, 87, 88, 88, 88, 88, 89, 95; (1918)† 77, 80, 83, 86, 87, 87, 88, 89, 89, 89, 89, 90, 90, 91, 91, 91, 92, 92, 92, 92, 93, 93; (1918) 91. | | |
| Syracuse University | | (1917) | 87, 91 |
| Jefferson Medical College | | (1917) | 86 |

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| Northwestern University | | (1909) | N. Dakota |
| State University of Iowa Coll. of Med. | | (1901) | Iowa |
| University of Louisville | | (1910) | Tennessee |
| Medical College of Virginia | | (1910) | Virginia |
| Marquette University | | (1915) | Wisconsin |
| Milwaukee Medical College | | (1911) | Wisconsin |

*Degrees held pending removal of conditions.
†Received M.B. degree on completion of four years' work. M.D. degree granted on completion of internship.

### Rhode Island July Examination

Dr. B. U. Richards, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, July 11-12, 1918. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Four candidates were examined, all of whom passed. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| Maryland Medical College | | (1913) | 83 |
| Tufts College Medical School (1918) 84.7, 89.4, 91.2. | | | |

### Utah July Examination

Dr. G. F. Harding, corresponding secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, July 2-3, 1918. The examination covered 19 subjects and included 100 questions. An average of 75 per cent. was required to pass. Three candidates were examined, all of whom passed. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent. |
|---|---|---|---|
| Rush Medical College | | (1917) | 84.8 |
| Johns Hopkins University | | (1918) | 79 |
| University of Maryland | | (1917) | 79.4 |

Dr. Harding also reports that 3 candidates, including 1 osteopath, were licensed through reciprocity, July 5, 1918. The following colleges were represented:

| College | LICENSED THROUGH RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| Denver College of Medicine | | (1883) | Colorado |
| Columbia University | | (1897) | Colorado |

# Book Notices

THE DISPENSATORY OF THE UNITED STATES OF AMERICA. Thoroughly revised, largely rewritten and based on the ninth revision of the United States Pharmacopoeia and the British Pharmacopoeia, 1914. By Joseph P. Remington, Ph.M., F.C.S., chairman of the Committee of Revision of the Pharmacopoeia of the United States of America; Horatio C. Wood, Jr., M.D., Professor of Pharmacology and Therapeutics in the University of Pennsylvania; Samuel P. Sadtler, Ph.D., LL.D.; Charles H. LaWall, Ph.M., Associate Professor of Theory and Practice of Pharmacy in the Philadelphia College of Pharmacy; Henry Kraemer, Ph.G., Ph.D., Professor of Botany and Pharmacognosy in the University of Michigan; and John F. Anderson, M.D., Director of the Research and Biological Laboratories of E. R. Squibb & Sons. Twentieth edition. Buckram. Price, $12. Pp. 2150. Philadelphia: J. B. Lippincott Company, 1918.

This book and the authors are so well known that words of introduction are unnecessary. We find the statement on the title page to be strictly true; the volume has been thoroughly revised and largely rewritten. The scope of the works of reference consulted in its compilation seems to have been broadened. Aside from the United States and British Pharmacopeias, the National Formulary and New and Nonofficial Remedies, more than 200 titles appear in the list of journals, etc., used for reference. It is pleasing to note that the statements quoted from these sources are treated in a critical manner; in fact, the policy of constructive criticism seems to have been adopted, a thing not very pronounced in previous editions. A valuable feature is the thorough manner in which the Federal Food and Drugs Act and the Harrison Narcotic Act are elucidated. The general arrangement of the text is the same as in previous editions. Part I, Pages 1 to 1222, contains the discussion of the articles described in the United States and British Pharmacopeias. As an aid to reference, a uniform style of treatment has been adopted; and, as previously, various features, such as properties, uses, preparation and commercial history, are set off by boldface type. Incompatibilities receive special attention and always appear at the end of the paragraph on uses. In Part II are considered those articles that are described in the National Formulary and New and Nonofficial Remedies, and those other things that are thought to be of sufficient interest to warrant mention. Part III, Section I, contains with a few exceptions a reprint of Part II of U. S. P. IX, Appendixes I to XIII inclusive of the British Pharmacopeia, and numerous tables of specific gravity and the like. Part III, Section II, contains Part I of the National Formulary in abstract. With all, the United States Dispensatory, Twentieth Edition, is a valuable book of reference, and this encyclopedia of drugs should be in the possession of every physician who aims to have an efficient reference library.

THE INDIAN OPERATION OF COUCHING FOR CATARACT INCORPORATING THE HUNTERIAN LECTURES DELIVERED BEFORE THE ROYAL COLLEGE OF SURGEONS OF ENGLAND. By Robert Henry Elliot, M.D., B.S., Sc.D. Cloth. Price, $3.50. Pp. 94, with 45 illustrations. New York: Paul B. Hoeber, 1918.

This booklet represents the Hunterian lectures delivered before the Royal College of Surgeons of England in 1917. The work of Colonel Elliot is perhaps the most important done on this subject. He presents the history of couching beginning with the operation first described by Celsus, following with the technical methods and statistical material, and discusses the pathologic anatomy of couched eyes based on a collection of fifty-four eyeballs which he himself presented to the Museum of the Royal College. This is believed to be the most valuable collection in the world. The final chapters concern the diagnosis and clinical care of these cases.

THE ESSENTIALS OF MATERIA MEDICA AND THERAPEUTICS FOR NURSES. By John Foote, M.D., Assistant Professor of Therapeutics and Materia Medica, Georgetown University School of Medicine. Third edition. Cloth. Price, $1.75. Pp. 310. Philadelphia: J. B. Lippincott Company, 1918.

This edition is based on the new pharmacopeia, New and Nonofficial Remedies, and on Wood's "Pharmacology and Therapeutics." The book is practical; much of it is in outline form. The last hundred pages consist of ready reference tables, lists of drugs, etc., which should be quite helpful.

# Society Proceedings

## COMING MEETINGS

American Public Health Association, Chicago, Dec. 9-12.
Assn. for S. & P. of Inf. Mort., Asheville, N. C., Nov. 11-14, 1918.
N. Y. and New England Assn. of Railway Surgs., N. Y. City, Oct. 21.
Southern Medical Association, Asheville, N. C., Nov. 11-14, 1918.
Virginia State Medical Society, Richmond, Oct. 22-25.
Western Roentgen Society, Chicago, Nov. 20-22.

## AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

*Thirty-First Annual Meeting, held at Detroit, Sept. 16-18, 1918*

The President, DR. ALBERT GOLDSPOHN, Chicago, in the Chair

### Stab Wound Drainage in Pelvic Infections

DR. H. WELLINGTON YATES, Detroit: It should be our constant endeavor to close without drainage, so far as safety will permit. Drainage materials should be removed earlier than is done in the general practice now obtaining. The great majority of all infected areas in the pelvis are suitable for culdesac or stab wound drainage. The abdominal incision should be left free to close by primary union. Stab wounds are securely and quickly united after the drainage is withdrawn, with no fear of subsequent hernia. The musculature of the areas usually chosen for stab wound drainage is our greatest asset to a speedy closure of the drainage opening.

#### DISCUSSION

DR. GORDON K. DICKINSON, Jersey City, N. J.: Drainage is a misnomer. Gauze does not drain. It is a local irritant and because of that property it walls off the local processes to a certain extent and makes things fairly safe. About ten years ago I made a study as to the value of the omentum in abdominal drainage, and I came to the conclusion then, and I feel the same now, that the omentum, properly applied, will drain more in ten minutes than any gauze will take out in a day.

DR. J. HENRY CARSTENS, Detroit: I have not drained for I do not know how long. I clean out the abdomen thoroughly without washing it. I mop it out and then close the incision without drainage.

DR. JOHN W. KEEFE, Providence, R. I.: Hard rubber drainage tubes in the abdomen have been largely discarded. Most surgeons feel that a hard rubber drainage tube should not be put next to the intestine. There is no question that an incision into Douglas' pouch for drainage is a desirable thing in a few cases. Looking back over the literature of gynecology one can see how many patients have died from the placing of drainage tubes in the pelvis and the withdrawal by nurses of the serum that formed. As soon as surgeons began to close the abdomen and not interfere with nature, these patients recovered.

DR. CHARLES L. BONIFIELD, Cincinnati: Dr. Keefe said that when surgeons began to keep drainage tubes out of the abdomen we got better results. While that is partly true, it is not the whole truth. One of the reasons we get better results now is that abdominal surgeons are improving their technic, and drainage becomes less necessary.

DR. HUGO O. PANTZER, Indianapolis: I concur in what Dr. Bonifield says, but there are cases in which we cannot get along without some form of drainage, cases with an accumulation of pus indicating that the peritoneum is unable to cope with it at that time, and hence some form of drainage is necessary.

### Pathologic Conditions of the Pelvic Viscera, the Result of Induced Abortions Causing Sterilization

DR. FRANCIS REDER, St. Louis: All abortions, whether induced or not, pave the way, sooner or later, for sterilization of the woman. An instrumentally induced abortion is more prone to cause sterilization than an abortion induced by therapeutic measures. The resultant pathologic changes in the pelvic organs, following an abortion, can be judged only vaguely. An abdominal section on a healthy woman who, in previous years, has had her pregnancies interrupted, causing sterilization, and who now desires to have a child, is a justifiable procedure after all therapeutic and minor gynecologic measures have proved of no avail. In the application of these measures, an approximate time limit of no less than two years, and of no more than three years, can be assumed. The correction of the pathologic conditions present may or may not enable the woman to become pregnant. Nothing definite can be formulated from a surgical measure undertaken to remove a barrier to pregnancy.

### Cesarean Section Under Local Anesthesia

DR. WILLIAM MORTIMER BROWN, Rochester, N. Y.: The chief conditions for which this form of anesthesia may be chosen are myocarditis with relaxed muscle, toxemia with urinary insufficiency, pulmonary tuberculosis, and other conditions that may contraindicate a general anesthetic.

### Cesarean Section

DR. ABRAHAM J. RONGY, New York: My experience with this operation consists of 109 cases, eight of which terminated fatally. During a period of twelve years I saw approximately 1,500 women in labor, all of them presenting some form of dystocia. Out of this great number I resorted to cesarean section eighty-two times. Cesarean section has no place in eclampsia when nature has already commenced to do its work, that is, when labor has already set in. In such cases large doses of morphin are the best form of treatment. Cesarean section has no place in the pre-eclamptic stage. In such cases one always has time to induce labor, and the results are usually very satisfactory. Only he who is well trained in obstetrics has a right to decide on this operation. A general surgeon has not the necessary knowledge to be competent to pass judgment on such an important question — important not only to the woman and to her future pregnancies, but also to the nation. If cesarean section is performed indiscriminately, there is bound to be a decrease in the birth rate, for the average woman will not submit too many times to this operation. For this and many other reasons, cesarean section should be left entirely to the well trained obstetrician.

### Treatment of Pregnancy Toxemia

DR. GEORGE CLARK MOSHER, Kansas City, Mo.: The technic that involves least shock consists of: (1) Preliminary gradual dilatation by Hegar's dilators up to No. 20; (2) Voorhees bag No. 4, if at term, introduced by Reed's method—cigaret roll held by Pean's forceps; lavage with sodium bicarbonate, 2 per cent., after uterus is emptied. Cases of the fulminating type, long hard cervix (in which no vaginal examination has been done), are best treated by classical cesarean section. When after contamination by frequent digital examination, infection is almost surely to be expected, a Porro or other hysterectomy should be done in the interest of the mother. I have had 95 per cent. recoveries of mothers, and 85 per cent. of the children at term. From my own experience, and that of other observers, including a report by Dr. Ben Meyers of Alaska, who finds that in the last year, an unusually cold wet season, 12 per cent. of his cases suffered from toxemia—the conclusion is drawn that the weather does at least aggravate the tendency to this condition. As there is a close relation between the toxemia and the nervous system, is it not also fair to ascribe to the war an incidental effect as a causative factor?

### Observations on Interned Venereal Patients

DR. JAMES E. DAVIS, Detroit: All cases of the series were examined serologically by the state board. Bacteriologic examinations of the smears taken from the urethral meatus, Bartholin's duct meatus, cervix uteri, and vagina were repeatedly made. Methylene blue and gram strains were employed. Patients were pronounced cured after the clinical disappearance of all lesions, and after obtaining negative Wassermann reactions before and after provocative arsphenamin injections and after five consecutive smears, preceding which provocative doses of gonococcal vaccine had

been administered. The average age of the patients was 17 years, and fourteen were married. The average length of time patients were confined in the hospital was thirteen weeks. The average cost to the state per patient was $195. There were ninety cases of gonorrhea and syphilis, forty-six of syphilis, seventy-two of gonorrhea with positive laboratory findings, and ten of gonorrhea, clinically positive, with laboratory findings negative.

### Recognition and Management of Labor Injuries

Dr. Arthur J. Skeel, Cleveland: I wish to emphasize four points: 1. Limiting or entirely avoiding vaginal examinations during labor is a routine preliminary part of the technic of primary repair of labor injuries. 2. Immediate inspection of the cervix, with primary repair of its injuries, reduces the risk of subinvolution and of uterine displacement. 3. The routine use of buried sutures in the perineum for the repair of second degree lacerations permits accurate coaptation and restoration of the parts. 4. Perineal lacerations are more surely repaired than is subpubic damage. Therefore, slow delivery and skill in directing the small diameters of the head through the vulvar ring should be sought. Forcing the head against the pubic arch produces more damage than it prevents.

### Vertigo of Menopause

Dr. K. I. Sanes, Pittsburgh: In most of our patients the vertigo was of the objective type, that is, they experienced a sense of rotation around them of the visible or palpable environments. In some of them the vertigo was of a subjective type, a sensation of motion of the body itself. A few of our patients described the vertigo as a sort of swimming movement, a feeling of being intoxicated, an extremely embarrassing condition (the pseudonarcotism of Tilt). Vertigo was seldom the only prominent menopause symptom; it was almost always accompanied by hot and cold flashes, cold perspiration, palpitation, blurred vision, flickering before the eyes, headache, nausea, tinnitus, etc. The relation of vertigo to climacteric functional hypertension is of interest, and it is claimed by some that it is responsible for the menopause vertigo. Excluding as far as possible the cases of organic hypertension (cardiovascular and renal), we found 102 patients with vertigo that had their blood pressure specified on their records, and of these only 45 or 46 per cent. had their blood pressure above 150, and only 20 or 30 per cent. above 160.

In most of our cases, the vertigo was only slight, just a mild dizziness; in others it was so severe that they feared walking by themselves on streets on account of the frequent falls and even loss of consciousness during the attacks of vertigo. If the case can definitely be diagnosed as that of climacteric vertigo, the treatment to be outlined must be that of menopause in general.

The results obtained from the use of ovarian substance, while sometimes strikingly good, are so frequently negative as to raise the question whether it has within it the same finished product or products that the internal secretion consists of; and if it has, whether it is competent to take care of the functional changes of the correlated endocrine glands brought about by the functional changes of the ovarian secretion.

### The Heart of a Pregnant Woman

Dr. Louis Burckhardt, Indianapolis: An early diagnosis is the chief factor for successful therapeutics. The menstrual disturbances, the aversion to physical exercise and the vasomotor symptoms will help greatly to single out suspicious cases. To depend on marked objective changes in the heart and the general system will lead to a loss of valuable time. If a heart affection has progressed to a point where drastic measures are unavoidable, irreparable damage has been inflicted on mother and fetus. Under drastic measures I include prolonged and absolute rest in bed, the use of opiates and large doses of digitalis; all these must interfere with a normal metabolism, so essential in this condition.

The first prophylactic steps ought to prevent impregnation, the prohibiting of marriage or the avoiding of conception. If, however, conception has taken place, the pregnancy, in all but the severest cases, must be carried to term. The interruption of pregnancy offers as many chances of a cardiac breakdown as a normal well conducted delivery—excepting an abortion induced before the formation of the placenta has begun. If a patient with a well compensated heart lesion presents herself for prenatal care, we must impress on her mind the necessity of preservation of energy. Saving alone does not suffice, but working up of new vital forces is needed. Not rest alone, but rest and exercise. We demand regular exercises and careful attention to elimination in every normal case; we must control both most minutely in heart cases. The blood pressure readings will assist greatly in controlling the patient's work. Between the thirty-fourth and the thirty-fifth week of pregnancy, daily observations will be necessary in order to determine the proper time of interference. During this period such patients are best strictly confined to bed. As soon as settling has occurred, a considerable amelioration of symptoms is frequently observed and the patient may be given more liberty of action.

*(To be continued)*

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## COLORADO STATE MEDICAL SOCIETY

*Forty-Eighth Annual Meeting, held at Estes Park, Sept. 9-11, 1918*

*(Concluded from page 1246)*

### Spastic Irritability of the Intestinal Tract

Dr. Julius L. Mortimer, Denver: A spastic state is due to exaggerated physiologic tonic contractions either of circumscribed areas or of entire intestinal segments, or to cramplike constrictions of the peristaltic waves. The intensity and duration of this condition varies according to the disposition of the patient and the nature of the prevailing cause. Prevailing causes are to be sought in the abnormal irritation from the intestinal contents, or in mechanical or chemical reflexes by the formation of large amounts of liquid or gaseous decomposition products. An increase of intestinal contents alone will often produce abnormally increased motility. This may be a consequence of hurried eating or poor mastication. Large undigested food substances as well as foreign bodies will generally pass through the small intestine rapidly without any manifestations. Disturbances will occur usually in the large intestine, where local spasms will be intensified by the occlusion of the foreign body.

Inflammations and new growths of the intestinal wall will result in an increased irritability of the automatic centers of motility. A frequent cause of intestinal spasm as a result of toxic action is found in lead poisoning and nicotin poisoning. Proctospasm may be caused by irritation through the sacral autonomic system, the pelvic nerve, as in tabetic crises, hysteria and neurasthenia.

#### DISCUSSION

Dr. Leonard Freeman, Denver: Perhaps the most startling and most characteristic form of spasmodic obstruction is that which takes place in the small intestine, usually in the lower portion of the ileum, where a section of bowel not more than from 3 to 6 inches in length will contract to the limit so that it is hard and white and bloodless, not bigger than a lead pencil or fountain pen, and so firm that one can pick it up by one end during a surgical operation and it will stand out straight without bending. This obstruction may take place in many portions of the intestinal canal, but it is usual to find it in one particular place. The contraction is so cut off from the rest of the bowel that the walls of the adjacent intestine are perpendicular. The causes of this obstruction are extremely obscure. The only thing we can say is that it is due to a reflex irritation arising generally in the intestinal canal itself, but possibly arising in other portions of the abdominal cavity like a twisted ovarian pedicle or strangulated hernia, or a twisted testicle or vein. It may follow any kind of surgical operation.

Dr. J. E. Matlack, Longmont: Spasm of the gastrointestinal tract is both a great help and a great hindrance to diagnosis by means of the roentgen ray. It is a help in that

many of the roentgen signs of disease of the stomach, for instance, are due to spasm, to deformity of the duodenum in duodenal ulcer as the result of spasm of that portion of the intestine, and in that way the diagnosis can be made definitely. A valuable method of differentiation between spastic and organic conditions of the stomach is repeated roentgen examinations and the administration of the tincture of belladonna.

### Fractures of the Tibia

DR. WILLIAM SENGER, Pueblo: During the past three years we have treated ninety-two cases of tibial fractures; twenty-five were compound and forty-four comminuted; eight involved the knee joint and twenty-eight the ankle. Amputation because of thrombosis was necessary in one case. As soon as possible the fractured leg is roentgenographed. The preliminary treatment of simple fracture consists of placing the limb in a blanket splint resting on a pillow and further protected by sand bags. Ice caps are applied and nothing further done until the swelling has nearly disappeared. The fracture is then reduced under the fluoroscope. When thus treated, we have never had a simple tibial fracture that has not given good results.

Comminuted fractures can usually be treated as simple fractures; but when the fracture involves the ankle joint or the knee, it may be impossible to reduce and fix properly, except by open operation. Likewise, it is the rule that an open operation is almost imperative in a comminuted spiral fracture with the fibula splintered at a higher level. We do not use the intramedullary autogenous graft. We feel that destruction of the bone marrow is a mistake. In open operations we have completely abandoned the use of all metallic substances for fixation. The autogenous graft answers every purpose and avoids the possibility of future irritation. In the treatment of compound fractures we follow the Carrel-Dakin method. It has proved most satisfactory. In a compound fracture the soft parts should never be sutured in the first aid dressing. It is far better to pour half strength tincture of iodin into the wound and about the surrounding parts. After this has dried, a loose, sterile dressing should be applied, the limb placed in a blanket splint, immobilized, and, if possible, the patient sent to a hospital for further treatment.

### The von Pirquet Test in Four Hundred and Sixty-Four Children

DR. EMANUEL FRIEDMAN, Denver: These patients ranged in age from a few months to 18 years. The acutely ill were excluded. The majority had abundant opportunity for infection. Most of the children were of tuberculous parents, many of whom had been inmates of sanatoriums in which they have had thoroughly inculcated rules of prophylaxia, which were scrupulously observed in many of the homes. The material conformed in kind with that on which most reports bearing on the frequency of childhood tuberculosis are based.

Of the 464 children tested, 39.8 per cent. reacted positively. Under 1 year, almost 12 per cent. reacted positively; from 10 to 14 years, 55 per cent., and from 14 to 18 years, only 51 per cent. The highest number of positive reactions was noted during the 11 to 13 year period, with 66.7 per cent.; and the lowest at the 5 to 6 year period, with only 13 per cent. positives. A comparison of these figures with those obtained at other sources warrants the conclusion that tuberculous infection among children in Colorado, while not as frequent as in Europe, is certainly no less frequently observed than in other American cities, barring New York.

### Water Hemlock Poisoning

DR. MARY R. STRATTON, Denver: Eleven boys, between the ages of 8 and 12 years, were seriously poisoned by eating the root of the water hemlock or *Cicuta occidentalis*. Two of the cases were fatal. The boys had eaten the root after 6 o'clock while out on the grounds after their evening meal. They were taken sick in about an hour after eating. Those first taken sick had been in convulsions between thirty and forty minutes when I first saw them—others for a much shorter time. The sickness began with acute cramp or severe pain in the stomach, with an inclination toward a bowel movement, and vomiting. Mostly the vomit was a clear, frothy fluid. Those that vomited the stomach contents were not so sick. They then became dazed and fell wherever they were and went into the most frightful convulsions and unconsciousness. None of them remembered anything about the events of that night when they awoke in the morning. The spasms were of a tonic character, with cyanosis and frothing at the mouth. The pupils were widely dilated, with the eyes open, eyeballs rigid and no corneal reflex. With some, the eyes were rolled up and the head drawn backward when they went into the convulsions, and they became rigid in that position. In the case of others, the eyes were bent downward and the head forward. The jaws became locked, and it was impossible to give them anything by mouth. The legs were somewhat parted and partly flexed. The arms partly flexed and held from the body, the hands clenched and finger nails blue. The muscles of the whole body were rigid and hard. In those who had been in convulsions some time, the pulse was fast, irregular and weak. During the severe convulsions, the breathing was interfered with to such an extent that the face was blue and livid, and one wondered if they might not die from suffocation. The external surface of the body was cold. There was no bowel action or urination during the convulsions. Once in a while the convulsions would relax only to return again.

The treatment consisted of stomach lavage with a weak tannic acid solution, hypodermic stimulation, chloroform inhalations for the convulsions or twitching, and a dose of salts in the morning. Those who vomited and evacuated the stomach thoroughly at the beginning had a good prognosis. The poison is absorbed rather slowly from the stomach, so that if the stomach is evacuated, even some time after the drug has been taken, it will often prevent a fatal termination

### Seminal Vesiculitis: Its Treatment

DR. WILLIAM M. SPITZER, Denver: Seminal vesiculitis may cause all the symptoms of a cystitis with its resultant miseries. It may result in an abscess with high temperature, prolonged prostration, and eventually death, simulating typhoid. Peritonitis occasionally, but rarely, ensues from a rupture of such an abscess into the peritoneal cavity. Colic, simulating renal colic, may appear, and the presence of pus in the urine at some time complicates the picture still more. Various ejaculatory disturbances, such as premature ejaculation, bloody ejaculation, painful ejaculation, or abscence of ejaculation at the termination of coitus, exists. Dysuria, pollakiuria, inability to urinate and other urinary disturbances may add to this condition. Various reflex pains, such as suprapubic, perineal, rectal, lumbosacral, sciatic, intra-abdominal (simulating appendicitis) and lumbar pains (simulating renal lesions) are common.

With the vesicle as a focus of infection, any condition may arise. Very common are various arthritides (gonorrheal), myocarditis, iritis and even choroiditis; and infections in any of the organs may ensue.

The following symptoms are more or less classic: 1. Pain; an infected seminal vesicle is always painful or tender to the touch. 2. Induration of the walls of the seminal vesicle. 3. The bringing forth of large, ribbon-shaped, vesicular casts on vesicular expression. 4. Sensitiveness or pain in the region of the verumontanum, which is determined by the aid of the olivary bougie.

The treatment should be divided into three parts, namely, the treatment of acute vesiculitis, subacute vesiculitis and chronic vesiculitis. There is a class of cases that demands surgical interference. These are the cases in which the seminal vesicle acts as a focus of infection and serious results threaten to follow, such as gonorrheal arthritis, iritis, serious myocarditis and any other diseased condition threatening the life or life work of the patient. Within the last three years I have opened and drained continuously over a period of two weeks the vesicles in fifteen patients suffering from gonorrheal arthritis. In no case had the arthritis (always polyarticular) existed for less than three months, and in each case everything had been done in the way of local treatment and vaccines that was possible, without any effect on the arthritis. In each case the arthritis was completely stopped within a few days, all joints being restored to normal within two weeks. Metastasis is cured by opening and draining the vesicles.

# Current Medical Literature

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Anatomy, Philadelphia

September, 1918, 24, No. 3

1 Development of Hypophysis Cerebri of Rabbit (Lepus Cuniculus). W. J. Atwell, Ann Arbor, Mich.—p. 271.
2 Morphology of Mammalian Seminiferous Tubule. G. M. Curtis, New York.—p. 339.

### American Review of Tuberculosis, Baltimore

September, 1918, 2, No. 7

3 How United States is Meeting Tuberculosis War Problem. G. E. Bushnell.—p. 387.
4 How Canada is Meeting Tuberculosis War Problem. J. H. Elliott, Toronto.—p. 400.
5 How America is Helping France with Her Tuberculosis Problem. J. A. Miller, New York.—p. 409.
6 Campaign Against Infants Tuberculosis in France by "Oeuvre Grancher." P. Armand-Delille, Paris, France.—p. 435.
7 What Shall Be Done with Tuberculous Soldiers Discovered in Draft, in Cantonments, or Overseas. J. Perkins, Providence, R. I.—p. 449.

### American Journal of Medical Sciences, Philadelphia

September, 1918, 156, No. 3

8 Focal Necrosis of Suprarenal: Acute Suprarenal Insufficiency Analysis of Two Cases. E. Moschcowitz, New York.—p. 313.
9 Side-Lights on Multiple Myeloma. A. W. Meyer and R. E. Swain, San Francisco.—p. 329.
10 *Meningitis in New-Born and in Early Infancy. M. Barron, Minneapolis.—p. 358.
11 Prognosis of Exophthalmic Goiter. E. MacD. Stanton, Schenectady, N. Y.—p. 369.
12 Symptoms of Syphilis of Nervous System. J. Collins, New York.—p. 375.
13 Pudendal Hernia. A. V. Moschcowitz, New York.—p. 395.
14 Studies in Cholelithiasis. Clinical Relationships of Cholesterinemia to Pathologic Process. A. O. Wilensky and M. A. Rothschild, New York.—p. 404.
15 Work of Bureau of Tuberculosis in France—American Red Cross. W. C. White.—p. 415.

**10. Meningitis in New-Born and in Infancy.**—Barron reviews the literature and cites one case. A male infant, 11 days old, was delivered in breech presentation. During the latter months of the last pregnancy the mother experienced pain in the epigastrium which was of the character of real labor pains during the last two weeks before delivery. She noticed that her abdomen was excessively enlarged. The childbirth, she thinks, was about one month premature. There was a condition of hydramnios during the second stage of labor, more than one gallon of amniotic fluid escaped. The delivery of the head was assisted by the insertion of a finger into the mouth of the fetus and then using a moderate amount of traction. The infant was cyanotic at birth, and it required considerable effort to initiate respiration. The infant had a whimpering cry and at no time nursed well. A slight right-sided paralysis made its appearance on the third day. The right hand appeared puffy and edematous. On the tenth day there was a bilateral swelling of the eyelids. Several slight convulsions were noticed on the morning of the eleventh day. The lips turned cyanotic. The child died on the same day. At the necropsy it was found that the brain was covered with a layer of brownish fibrinopurulent exudate. This is most marked over the left parietal region. Smears from the exudate show disintegrated pus cells and immense numbers of extracellular and intracellular gram-negative, short, plump bacilli. The organism recovered by culture was definitely the *Bacillus coli-communis*.

### Arkansas Medical Society Journal, Little Rock

September, 1918, 15, No. 4

16 Some Problems Confronting Public Health Service. T. J. Woods, Evening Shade.—p. 63.
17 Mental Health. T. Douglass, Ozark.—p. 67.

### Boston Medical and Surgical Journal

Sept. 12, 1918, 179, No. 11

18 *Suspension and Traction Treatment of Fractures in Base Hospital. G. A. Moore, Brockton.—p. 349.
19 *Use of Turn-Buckle for Traction and Counter-Traction in Treatment of Fractures. F. Holyoke, Holyoke.—p. 362.
20 War Surgery in France. W. I. Clark, Worcester.—p. 365.
21 Empyema and Its Treatment in Military Cantonments During the Winter of 1917-1918. H. Gage, Worcester.—p. 368.
22 Splints for Transportation. K. Emerson, Worcester.—p. 373.
23 Ultraviolet Light for Boils; Case Report. J. Bryant, Boston.—p. 377.

Sept. 26, 1918, 179, No. 13

24 Mortality from Organic Diseases of Heart Among Wage Earners, 1911-1916. L. I. Dublin, New York.—p. 413.
25 Birth Control. M. D. Ordway, Boston.—p. 421.
26 Hearing Test with Voice to Detect Malingering. J. F. Callahan, Brockton.—p. 423.
27 Treatment of Symptoms and Complications in Tuberculosis. H. F. Gammons, Deerwood, Minn.—p. 425.
28 Tetanus with Incomplete Trismus; Recovery with Serum. R. W. Angevine, Rochester, N. Y.—p. 427.
29 *Nonsurgical Cure of Incompetence of Ileocecal Valve. J. Bryant, Boston.—p. 428.

**18. Suspension and Traction Treatment of Fractures in Base Hospital.**—The idea of treating fractures by suspension and traction is not a product of the present war, as it was first used over a hundred years ago. The adaptation of this method to fractures of the arm and many improvements on the original method of Hodgen for treating fractures of the leg are the results of the present war. Many of the new ideas in this method have been developed by surgeons of the staff of the American Ambulance Hospital, especially by Major Joseph Blake. The introduction of this method in the present war was for the treatment of badly infected compound fractures. It has proved of inestimable value, from both a subjective and an objective point of view. Subjectively, there is absolute comfort to the patient at all times, as the fragments of bone remain in the same relative position when the patient moves about in bed and when the dressing is done. The pain from congestion of the limb is eliminated owing to the improved circulation. Objectively, the edema of the limp disappears as the limb is higher than the body, and there are no tight bandages about the limb; the wound heals more quickly, due to better circulation. Union of fractures occurs early as a result of immobilizing the fragments, and ankylosis of neighboring joints is avoided by massage and motion during treatment. It requires some training and patience to apply the apparatus properly at the first dressing. It also requires watchfulness on the part of the surgeon to maintain a proper application of the apparatus throughout treatment; but the results more than compensate for the added work.

**19. Use of Turn-Buckle for Traction in Treatment of Fractures.**—The turn-buckle is a peculiarly unique mechanism where carefully controlled traction and counter-traction has proved necessary under roentgen-ray findings, and Holyoke believes that it will find a very important place in surgery. He describes a case to illustrate the use of the buckle.

**29. Nonsurgical Cure of Incompetence of Ileocecal Valve.**—Bryant cites a case as proof that an incompetent ileocecal valve may become competent under medical treatment. The treatment he used is not described.

### Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

May, 1918, 10, No. 4

30 Responsibilities of Medical Profession in this War. V. Vaughan —p. 54.

### Colorado Medicine, Denver

September, 1918, 15, No. 9

31 Nontuberculous Chest Conditions Diagnosed as Tuberculosis; Unusual Cases of Pulmonary Tuberculosis. J. B. Crouch.—p. 210.
32 Cesarean Section in Toxemia of Pregnancy. L. H. McKinnie, Colorado Springs.—p. 218.
33 Few Difficulties in Administration of Ether. D. E. Hoag, Pueblo. —p. 223.

### Georgia Medical Association Journal, Augusta

August, 1918, 8, No. 4

34 Syphilis vs. Cancer of Stomach. G. M. Niles, Atlanta.—p. 71.
35 Diagnosis and Treatment of Gastric Ulcer. J. T. Rogers, Savannah.—p. 74.
36 The Man with Horns; A Sideshow Fake. A. D. Little, Thomasville.—p. 79.
37 Direct Alcoholization of Sensory Root of Fifth Nerve in Treatment of Tic Douloureux. H. H. Martin, Savannah.—p. 81.
38 Examination of Stools of Children and Its Significance. W. L. Funkhouser, Atlanta.—p. 82.

### Journal of Biological Chemistry, Baltimore

September, 1918, 35, No. 3

39 Studies on Pollen and Pollen Disease. Chemical Composition of Ragweed Pollen. J. H. Koessler, Chicago.—p. 415.
40 *Experimental Scurvy of Guinea-Pig in Relation to Diet. B. Cohen and L. B. Mendel, New Haven, Conn.—p. 425.
41 Indicators in Animal Tissues. W. J. Crozier.—p. 455.
42 Significance of Glycollic Acid, Glyoxal, Glycol Aldehyd and Amino-Aldehyd in Intermediary Metabolism. I. Greenwald, New York.—p. 463.
43 Rapid Micromethod for Determination of Phosphate and Total Phosphorus in Urine and Stools. A. Sato, Baltimore.—p. 473.
44 Scurvy of Guinea-Pigs. Experimental Dietary. A. F. Hess and L. J. Unger, New York.—p. 479.
45 *Id. Experiments on Effect of Addition of Fruits and Vegetables to Dietary. A. F. Hess and L. J. Unger, New York.—p. 487.
46 Influence of Electrolytes on Osmotic Pressure of Gelatin Solutions. J. Loeb, New York.—p. 497.
47 Simple Application of Volhard Principle for Blood Plasma Chlorids. W. C. Rappleye, Foxboro, Mass.—p. 509.
48 Determination of Creatinin and Creatin in Blood. W. Denis, Boston.—p. 513.
49 *Fat Soluble Vitamin. H. Steenbock, P. W. Boutwell and H. E. Kent, Madison, Wis.—p. 517.
50 Refractive Index of Blood Serum of Albino Rat at Different Ages. S. Hatai, Vineland, N. J.—p. 527.
51 Carbon Dioxid Combining Power of Blood Plasma in Experimental Tetany. W. S. McCann, Boston.—p. 553.
52 Modified Method for Preparation of Picramic Acid. G. Egerer, Minneapolis.—p. 565.
53 Metabolism of Glycerin Given Intravenously at Constant Rates. J. H. Lewis, Chicago.—p. 567.

40. **Scurvy in Relation to Diet.**—The extended experimental work done by Cohen and Mendel may be summarized as follows: Experimental scurvy of the guinea-pig is demonstrated at will with suitably chosen diets. Exclusive diets of cereal grains like oats and barley produce the disease. Germinated oats or barley prevent the appearance of scurvy even when fed for comparatively long periods. Scurvy arises on a diet of soy bean flour, even when the latter is supplemented with fat soluble and water soluble vitamins, inorganic salts and cellulose. Small additions of raw milk do not prevent the onset of scurvy. Larger quantities cause the symptoms to disappear. Roughage in the diet plays, if anything, a minor accessory rôle in the prevention of scurvy. This disease is not essentially dependent on constipation as a causative factor though the latter may aggravate the symptoms. Cabbage seems to retain some antiscorbutic properties even when dried. Contrary to certain current statements, highly purified lactose, fed with a scurvy producing diet appears to have no effect on the course of the disease.

45. **Effect of Fruits in Dietary in Scurvy.**—Hess and Unger found that orange juice which had been allowed to age for some months in the refrigerator lost some of its antiscorbutic power. This factor may be extracted from orange juice by means of 95 per cent. alcohol, and is entirely absent in the residue. Artificial orange juice prepared according to the formula of McCollum and Pitz failed to protect guinea-pigs from or to cure them of scurvy. It was also found to lack antiscorbutic power in infantile scurvy. Orange peel possesses marked antiscorbutic potency, and withstands desiccation remarkably well, retaining considerable of this power after being dried for three months. Prunes possess practically no value as a preventive against scurvy. Dehydrated vegetables were found to contain little or no antiscorbutic virtue. This experience coincides with that encountered in relation to human scurvy. As this food is of decided nutritive value efforts should be instituted to improve the methods of dehydrating and of storing so as to obviate this deficiency.

49. **Fat Soluble Vitamin.**—Much emphasis has been placed on the superior value of butter fat as compared with other fats used in the human diet, due to the larger content of fat soluble vitamin in the former. The experiments briefly discussed in this paper indicate some of the conditions which may modify and even eliminate all reasons for this distinction. Lard, vegetable fats, and beef fats on the average, as has been shown repeatedly, do not compare favorably with butter fat. The liquid portion of beef fat as first found by Osborne and Mendel and later by Halliburton and Drummond, and also the fats of certain animal organs are richer in the fat soluble vitamin and in some instances may compare very favorably with butter fat. In general, however, oleomargarins on account of the large amounts of the vitamin poor fats used in their manufacture and in spite of the fact that they are churned with milk and contain some butter fat are not to be considered in the same class as good butter in providing the organism with the fat soluble vitamin. Questions of influence of feed, storage conditions, and temperatures used in the renovation of inferior products and even the method of use of the product in the home must be taken into consideration when depending on butter fat as a sole source of fat soluble vitamin in the dietary. With an abundance of a considerable amount of the vegetative parts of plants in the diet the superior value of butter fat over other fats in the human diet is questionable. In the rat as small an amount as 5 per cent. of alfalfa in the ration provides sufficient fat soluble vitamin for normal growth, reproduction, and the rearing of some young. In the absence of such materials in the diet the superior value of butter fat and in fact its necessity for normal nutrition is not to be denied. Then it becomes an important matter to know how this superior quality of butter fat can be obtained and preserved.

### Journal of Laboratory and Clinical Medicine, St. Louis

September, 1918, 3, No. 12

54 Recent Aspects of Streptococcus Infection. F. P. Gay.—p. 721.
55 *Study of Leukocytes in an Epidemic of Influenza. R. P. Forbes and H. A. Snyder.—p. 758.
56 Introductory Exercises in Experimental Pathology. W. H. Manwaring, Stanford University, Calif.—p. 761.

55. **Leukocytes in Influenza.**—During April, 1918, a highly contagious, but comparatively mild infection of the respiratory tract was epidemic at Camp Hancock. Several thousand men in the command were infected, but relatively few were ill enough to be sent to the base hospital. The only fatal case occurred early in the epidemic. A blood culture made on the second day of the disease showed in twenty-four hours a heavy growth of small nonmotile, gram-negative, bacilli—*B. influenzae*. *B. influenzae* was recovered from cultures taken from the lung and spleen. Early in the epidemic, Forbes says, it was noted that leukopenia or at least absence of hyperleukocytosis, was a constant factor, and the leukocyte count was frequently of aid in differential diagnosis. However, the clinical picture of the disease usually made diagnosis easy: Nearly every patient gave as the initial symptoms backache, headache and slight cough or sore throat. Conjunctivitis and a marked injection of the soft palate was noted in 90 per cent. of the cases. In addition, a slight or moderate general adenopathy was often noted. The face was flushed and in a few cases the skin of the thorax presented a mild erythema. In three cases a provisional diagnosis of scarlet fever was made until the blood count showed a leukopenia.

### Laryngoscope, St. Louis

September, 1918, 28, No. 9

57 Treatment of Stenosis of Larynx and Trachea Following Diphtheria. H. L. Lynah, New York.—p. 629.
58 Tests for Malingering in Defective Hearing. P. D. Kerrison, New York.—p. 662.
59 Problem of Stammering and Its Solution. E. L. Kenyon, Chicago.—p. 666.
60 Report of Cases, Mostly Traumatic, of Serious Damage to Nose and Accessory Sinuses, Operated on Externally with Excellent Cosmetic Results. J. R. Winslow, Baltimore.—p. 679.
61 Recurrent Teratomatous Growth of Trachea. W. Freudenthal, New York.—p. 690.
62 Case of Meningitis Treated by Labyrinthectomy and Decompression. C. E. Perkins, New York.—p. 695.
63 Diseases and Deformities of Nose vs. Neuralgia of Head. F. Stauffer, Salt Lake City.—p. 698.
64 Conservatism in Radical Surgery of Nose and Throat. J. W. Wright, Indianapolis.—p. 705.

### Medical Record, New York

Sept. 28, 1918, 94, No. 13

65 An Appeal to Physicians in Behalf of Fourth Liberty Loan. J. J. Kindred, Astoria, L. I.—529.
66 Cancer; Its Causation and Prevention. J. W. Shannon, San Diego, Calif.—p. 530.
67 Perils from Faulty Postures. J. M. Taylor, Philadelphia.—p. 540
68 Resistance and Transference in Psychanalysis. C. P. Oberndorf, New York.—p. 542.
69 Why Iodin? What Iodin? D. H. Stewart, New York.—p. 546.
70 The Terror that Comes in the Night. E. F. Bowers, New York.—p. 547.

### Military Surgeon, Washington, D. C.

September, 1918, **43**, No. 3

71 *Communicable Diseases in National Guard and National Army of United States During Six Months from Sept. 29, 1917, to March 29, 1918. V. C. Vaughan and G. T. Palmer.—p. 251. To be concluded.
72 History of Base Hospital, Camp Sherman, Chillicothe, Ohio.—C. A. Wood.—p. 296.
73 *Treatment of Infections and Infected Wounds with Dichloramin-T. W. E. Lee and W. H. Furness.—p. 312.

71. See THE JOURNAL, Oct. 12, p. 1248, No. 42.

73. **Treatment of Infections and Infected Wounds with Dichloramin-T.**—At present records have been obtained by the authors from 19,040 completed cases in civil surgical practice which have been treated with dichloramin-T during the last fifteen months. These patients have been treated in the Pennsylvania, the University of Pennsylvania, Germantown, Children's and Bryn Mawr hospitals and the accident services of the Midvale Steel Works and the Remington Arms Company. After these fifteen months' investigation they feel that the use of dichloramin-T has definitely improved the results they have obtained in the primary closure of traumatic wounds of the soft tissues, bones and joints. In the treatment of superficial accessible infections dichloramin-T has uniformly given them better results than any other germicide they have employed, and that the method of its application is simpler and the dressings more economical than with any of the other chlorin agents.

The best results with dichloramin-T can only be obtained when actual chemical contact of the germicide with the infecting organism is maintained. To maintain such contact in superficial surgical infections is a simple matter, and in the first few months of the work a satisfactory technic for this class of wounds was developed. In deep and inaccessible infections the problem is more difficult, and the greater part of the fifteen months has been devoted to this aspect. The confidence in the germicidal value of dichloramin-T has so developed that when it does not control infection the authors feel that the chemical contact has not been maintained, the mass of the germicide employed has not been sufficient, or adequate surgical treatment has not been given.

The striking detoxicating effect of the chlorin group of agents which has become common knowledge through the general use of neutral solution of chlorinated soda is just as satisfactory exhibited with dichloramin-T. Dichloramin, unlike the aqueous hypochlorite solution, has no effect on the knots of catgut ligatures and no disintegrating effect on the catgut itself. The occurrence of secondary hemorrhages in wounds treated by the Carrel method was not uncommon in their experience at the American Ambulance. Major Sweet reports that, in his 1,200 cases of major infected military wounds, there was not one secondary hemorrhage.

The authors say that too great stress cannot be laid on the value of dichloramin as a deodorant dressing. The absence of the usual disagreeable odors in their wards, containing cases with fecal fistulas, is a general observation. During the last two months it has been used routinely in the wards of the Oncological Hospital in Philadelphia. Where formerly these putrid, sloughing, malignant tissues were irrigated every two hours with all kinds of solutions, with indifferent success in the control of infection and with a persistence of the offensive odor, now they are packed lightly every six hours with gauze saturated with a 5 per cent. solution of dichloramin-T. Dr. Gordon Saxon reports that not only has the odor disappeared entirely, but the wound infections have been controlled.

### New Jersey Medical Society Journal, Orange

September, 1918, **15**, No. 9

74 Involuntary Nervous System and Organ Therapy. J. Rogers, New York.—p. 297.
75 Duty of Family Physician to Patient Suffering from Headache and Eye Strain. L. Emerson, Orange.—p. 303.
76 Acidosis in Infants. J. Levy, Newark.—p. 309.

### New York Medical Journal

Sept. 28, 1918, **108**, No. 13

77 Civilization and Liberty Loan. G. D. Stewart, New York.—p. 533.
78 Mecca of Medicine for Future. F. Tilney, New York.—p. 534.
79 General Diagnostic Study by Internist. L. F. Barker, Baltimore.—p. 538. To be continued.
80 Sex Hygiene. G. W. Franklin, Albany.—p. 542.
81 Syphilis of the Stomach. A. F. R. Andresen, Brooklyn.—p. 544.
82 Dietetic Treatment of Intestinal Stasis. J. W. Weinstein, New York.—p. 547.
83 Congenital Dislocation of Hip in Three Generations. S. A. Jahss, New York.—p. 550.

### South Carolina Medical Association Journal, Greenville

August, 1918, **14**, No. 7

84 Middle Ear and Mastoid Infection in Children. J. W. Jervey, Greenville.—p. 202.
85 Tonsillectomy with Local Anesthesia. P. V. Mikell, Columbia.—p. 206.

### Southwest Journal of Medicine and Surgery, El Reno, Okla.

September, 1918, **96**, No. 9

86 Therapy of Pellagra. G. M. Niles, Atlanta, Ga.—p. 193.
87 Goiter. C. R. Phelps, Oklahoma City.—p. 202.

### Vermont Medicine, Rutland

August, 1918, **2**, No. 8

88 American Association of Independent Physicians. A. S. M. Chisholm, Bennington.—p. 191.
89 Health Inspection in Public Schools. C. S. Caverly, Rutland.—p. 193.

### War Medicine, Paris

August, 1918, **2**, No. 1

90 *Wounds of Chest. P. B. Soltau.—p. 1.
91 Early Operative Treatment in Chest Surgery. A. L. Lockwood.—p. 6.
92 *Gunshot Wounds of Chest as Seen in Hospitals on Lines of Communication. J. R. Bradford.—p. 10.
93 *Secondary Surgical Treatment of Chest Wounds. T. Tuffier.—p. 16.
94 *Operative Results of Early Surgical Treatment of Wounds of Lung. P. Duval and E. Vaucher.—p. 21.
95 *Extraction of Projectiles from Pleura and Diaphragm. E. P. de la Villéon.—p. 24.
96 Nature of Nervousness in Soldiers. F. Kennedy.—p. 26.
97 Outline of American Plans for Dealing with War Neuroses. T. W. Salmon.—p. 34.
98 Psychoneurologic Disturbances Affecting Limbs Observed During the War. G. Roussy.—p. 37.
99 Diagnosis and Treatment of War Psychoneuroses Especially with Reference to Cases of Convulsions and Asthenia. Laignel-Lavastine.—p. 44.
100 Preventive Measures in Relation to War Neuroses in U. S. Army Cantonments in America. H. W. Rhein.—p. 47.

90. **Wounds of Chest.**—According to Soltau the chest wound formed on an average 2.5 per cent. of all casualties admitted to the casualty clearing stations and, on occasions, it had risen to 3.5 per cent. To deal properly with cases in these numbers he considered that the following preparations were necessary in a casualty clearing station: 1. A chest team, consisting of a physician and surgeon, who should work in close collaboration, selecting the right type of case for operation, etc. 2. A ward with fifty beds, of which twenty should be fitted with the Fowler elevating frame. (This would allow for the accommodation and retention of cases admitted during forty-eight hours, on an estimated basis of 1,000 admissions a day, which might be expected in active times.) 3. A skilled nursing staff and trained orderlies; apparatus for giving oxygen, preferably Haldane's; if possible, an operating theater attached; immediate access to a bacteriologic laboratory and a roentgenographic outfit. 4. It is necessary also to have a systematized method of note taking and recording.

The mortality had been calculated from returns made from the greater part of the British front during the fighting in 1917. It was impossible to be certain of the death rate in the regimental aid post, but such deaths were practically all in the fatally wounded. At the field ambulance stations it was 7 per cent. In the casualty clearing stations it was 17.18 per cent., that is, 15.9 per cent. in the ninety-three remaining cases. At the base it was about 6 per cent., that is, 4.6 per cent. in the seventy-seven remaining cases. The total mortality in 100 cases which reached a medical unit was therefore 27.5 per cent.

The causes of death were: (*a*) anatomic, (*b*) septic. (*a*) This class included gross lesions, with profound shock and hemorrhage, the complicating lesions involving abdomen

and other areas, the multiple wounds, and deaths from edema of the lung and asphyxia. (*b*) The types of infecting organisms at the base were: gas forming organisms, 48 per cent.; streptococci, 40 per cent., and lung organisms, 12 per cent. The infected cases in the front area showed a similar distribution of organisms. The streptococcic infections were the most fatal. In the field ambulance zone the death rate was due entirely to anatomic causes; in the casualty clearing stations it was due both to anatomic and to septic causes, while at the base it was entirely septic in origin. The septic death rate in the casualty clearing stations area was about 26 per cent. of all deaths. Applying the figures given as to mortality, it will be seen that of every 100 men wounded in the chest, about nine die of sepsis.

In the line of treatment, the following points required attention: cleanliness; the combating of shock by careful warming, taking care not to overdo the "réchauffement"; the relief of pain by morphin or one of its derivatives, and by placing the patient in the position which he himself finds most comfortable. The necessity of closing an open wound is mentioned. This is best done by suture, and, in cases in which this is impossible, by most careful plugging. The case should be evacuated to a casualty clearing station as soon as the primary shock is overcome, usually in about three or four hours.

At the casualty clearing station the first essential is to secure rest. Early examination should be confined to determining that there is neither bleeding nor a sucking wound. More detailed examination may follow in a few hours, when an exact diagnosis as to the conditions present, coupled with roentgen-ray localization of foreign bodies, etc., should be made. Sepsis must be continually watched for, both by needling and by observing the constitutional signs. The large hemothorax needs aspiration, which is best done about forty-eight to seventy-two hours after wounding. As regards surgery, the following types of wound might be taken as needing operation: the large open wound or the "stove-in" chest, requiring plastic repair, and closure; the large retained foreign body, when accurately localized; the infected chest, which could be treated either by cleansing and closure or by drainage.

When to evacuate is a constant problem especially in times of active fighting. In quiet times it is better to evacuate the straightforward cases either at the end of three days or else after ten days. The intervening period is the time when sepsis usually appears, and it is better not to let patients travel during that period. In rush times, all wounds unaccompanied by extensive parietal injury, in which the hemothorax is not excessive, may be evacuated within twenty-four hours, provided the primary shock is overcome. After operation, patients should be retained for at least ten days. The open or draining chests travel badly. Patients should not be evacuated within twenty-four hours of aspiration. Soltau says that it is better to hold all patients until convalescent, but the ideal was rarely attainable, and it is often absolutely essential to evacuate early. He emphasizes that surgical treatment concerns only a small portion of the cases, that in these the highest skill is necessary, and that for the remainder the painstaking care of a skilled physician is needed.

92. **Treatment of Gunshot Wounds of Chest in Hospitals on Lines of Communication.**—The main problem in the treatment of these cases, Bradford says, is that of forming an accurate diagnosis: first, as to the exact anatomic condition present; and second, as to the presence or absence of infection. For the adequate treatment of these cases it is essential that these patients should be placed in special wards under the care of a physician and a surgeon working together in close cooperation. If the hemothorax is sterile and small in amount no special treatment is required. Aspiration should be employed in all cases of moderate or large size. The fluid should be removed slowly. The oxygen replacement method is of great value, inasmuch as by this means all the bloody effusion can be removed at one sitting with the minimum discomfort to the patient, provided local anesthesia is employed. In the exceptional cases where clotting en masse has occurred the chest should be opened and the clot removed, the chest being then closed and subsequently aspiration practiced if necessary. In cases of infected hemothorax there should be no delay in the treatment of the patient by surgical methods, such as drainage of the pleura or preferably by cleansing the pleura after the excision of a long length of rib with immediate closure of the chest and subsequent repeated aspiration. The only class of case that admits of delay is that in which the patient presents no symptoms and yet the pleural fluid contains organisms. Some of these patients undoubtedly get well if only treated with aspiration, but in many of these the patient's condition is not really satisfactory, the fluid reaccumulates and it is questionable whether it is not better to treat such patients by opening and cleansing the pleura with immediate closure.

93. **Surgical Treatment of Chest Wounds.**—Tuffier believes that the surgical operations necessitated by the complications which follow wounds of the chest are relatively few. He divides them into two classes: Aseptic complications, which include foreign bodies, hemothorax, pulmonary sclerosis, and ultimately pulmonary tuberculosis; and infectious complications, which are constituted by purulent pleurisy, abscess and gangrene of the lungs. He states that foreign bodies should be extracted, after the usual process of localization, only when they cause functional troubles which can be definitely traced to their presence. Tuffier and his colleague Depage advocate a method of treating cases of open purulent pleurisy, based on chemical disinfection of the wound followed by closure of the surgical incision, both in medical purulent pleurisy and in posttraumatic surgical suppurations. (*a*) Treatment of pleural suppuration in unopened cavity comprises three steps: pleurotomy, chemical disinfection and closure. (*b*) Treatment of fistular purulent pleurisy: A bacteriologic examination of the discharge is made by swabs taken from three points: (1) the deep part of the cavity; (2) the edges of the fistula; (3) the skin near the wound. The nature of the discharge being thus established, the treatment is instituted. It comprises three steps, as in the procedure previously described: (1) Débridement and incision of the pleural adhesions; (2) chemical disinfection; (3) closure. When three successive swabs, taken from the depths of the wound, from the edges, and from the neighboring skin, remain negative, the wound is sutured.

94. **Results of Early Surgical Treatment of Lung Wounds.**—For the last two years Duval has treated the wounds of the lungs presenting serious immediate accidents, external or internal bleeding, and opened thorax, by immediate surgical operation on the wound of the lung. For the past year and a half he has operated systematically without compulsion of urgency on certain wounds of the chest to remove the foreign bodies (missile, splinters), to clean surgically the wound of the lung (excision, sweeping suture), to clean the pleura and to treat the wound of the chest wall. Without any immediate surgical treatment the total mortality of chest wounds reaches 30 per cent., not including the soldiers who die in the midposts of the regiments. Through and through wounds, 21.2 per cent.; wounds with shell fragment retained, 30.3 per cent.; wounds with opened thorax, 27 per cent.; wounds with closed thorax, 15 per cent. These figures are based on 3,453 cases.

The authors' personal statistics of last year, including all cases from the field ambulance to the evacuation hospital, all the patients who died without having been operated on, those operated on for serious bleeding or opened thorax, those operated on systematically, and those not operated on, are taken from 161 cases among which there were 27 deaths, a mortality of 16.7 per cent. Of these 27 soldiers who died, 13 were not operated on. They died soon after reaching the ambulance in such bad state that nothing could be done to save them; 148 patients could be treated, 14 died, mortality 10.5 per cent. Among these 148 cases, 29 patients were operated on through urgency, either because they were bleeding severely —16 patients, 9 died—or because the thorax was opened—13 patients, 4 died—the mortality among these being 13. The mortality among the patients operated on through urgency was 44.8 per cent. There were 119 cases which probably would have been treated medically in other ambulances. One hundred and two patients were treated medically because

there was no indication for operating; 5 developed empyema; one of them healed perfectly; one died of pleural infection—it was the only death among the 102 cases; the 17 remaining patients who presented no urgent indication for operation but who, according to Duval's personal experience, would probably have developed infection, were nevertheless operated on immediately after reaching the ambulance; the indications for operating being given either by the size of the missile or the injury of the chest wall, fracture of ribs or of scapula, or the importance of the hematoma in the lung. This prophylactic operation consists in: removal of the foreign body; direct treatment of the wound of the lung; bleeding of the pleural cavity; careful excision of the wound of the chest wall. Duval's opinion is that infections are due to the fact that the wound of the lung had not been thoroughly treated, incomplete excision, bits of clothing, or splinters remaining in the wound or in the pleura, and the missile not removed.

95. **Extraction of Projectiles from Pleura and Diaphragm.**—Villéon has abandoned the classic method of thoracotomy in extracting projectiles in the pleura for the simpler method by means of forceps of his own design manipulated under a radioscopic screen and inserted through a small incision. The results thus obtained have been uniformly excellent with a minimum of surgical disturbance and no pneumothorax.

### Wisconsin Medical Journal, Milwaukee

September, 1918, 17, No. 4

101 Use of Precise Methods in Medicine. H. P. Greeley, Madison.—p. 131.
102 Relationship of Temperament to Psychoses. A. W. Rogers, Oconomowoc.—p. 136.
103 Submucous Resection of Nasal Septum. C. G. Dwight, Madison.—p. 139.
104 Seminal Vesicleography. H. J. Millstone, Chicago.—p. 146.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### Archives of Radiology and Electrotherapy, London

August, 1918, 23, No. 3

1 Universal Roentgen Ray Apparatus of Great Utility. E. C. B. di Castelvecchio.—p. 73.
2 Case of Fracture of Sesamoid Bones. F. S. Scales.—p. 83.
3 Germicidal Action of Ultraviolet Radiation and Its Correlation with Selective Absorption. C. H. Browning and S. Russ.—p. 85.
4 Roentgen Rays and Electricity in Exophthalmic Goiter, and other Disorders of Ductless Glands. F. Hernaman-Johnson.—p. 91.
5 Exposure of Photographic Plates Varies with Milliamperage and Hardness of Tube. E. H. Nelthorpe.—p. 99.

### British Medical Journal, London

Sept. 7, 1918, 2, No. 3010

6 *Etiology and Treatment of Seborrheic Eruptions. H. W. Barber and H. C. Semon.—p. 245.
7 *Ten Thousand Recruits with Doubtful Heart Conditions. S. R. Wells.—p. 248.
8 Reactivity of the Blood. Relation to Cardiac Breathlessness, Surgical Shock and Allied Conditions of the Nervous and Circulatory Systems. B. Moore.—p. 251.
9 Treatment of Epilepsy by Collosol Palladium. A. C. King-Turner.—p. 255.
10 Medical Education in England. Overloaded Curriculum and Incubus of Examination System. E. H. Starling.—p. 258.
11 Education Act and Medical Profession. H. B. Brackenbury.—p. 259.

6. **Treatment of Seborrheic Eruptions.**—After studying the effect of giving alkalis in some 300 cases with seborrheic manifestations Barber and Semon have satisfied themselves that their action may be described as specific. It is not contended, however, that administration of alkalis abolishes the necessity for local applications, but it is claimed that this method of treatment hastens in remarkable fashion the clearing of the various eruptions dependent on the seborrheic state, and, provided that the patient be then given an adequate quantity of alkaline salt per diem, relapses will not occur. The best local applications are oily alkaline suspensions of calamine—for example:

℞ Calamine præp. ..... 3j
Aquæ calcis ..... 3j
Ol. arachis. vel ol. olivæ ..... ad. 3iv

Most seborrheic lesions are amenable to this application, which should be renewed not less than twice daily, on lint. When oil is difficult to obtain in sufficient quantity, sodium bicarbonate in 2 per cent. solution in water is very useful. It must be applied thrice daily at least, as a soak on lint under jaconet, and should be changed once during the night if the lesions are very acute. At a later stage when erythema and congestion with irritability of the skin surface persist, the part should be covered with lint or linen smeared with Lassar's paste. All hairy parts, with the exception of the eyebrows and lashes, should be close cropped or shaved.

7. **Recruits with Doubtful Heart Conditions.**—Wells endeavored to determine the incidence in 10,000 cases of various diseases which have been supposed to lead to damage of the cardiac valves or myocardium. A history of rheumatic fever was obtained in 19.2 per cent.; chorea, 2.6 per cent.; rheumatism, 16.1 per cent.; growing pains, 26.5 per cent.; tonsillitis, 22.1 per cent.; scarlet fever, 21.8 per cent.; diphtheria, 7.2 per cent.; pneumonia, 5.3 per cent.; influenza, 56.0 per cent.; syphilis, 2.0 per cent.; gonorrhea, 5.95 per cent., and strain, 27.1 per cent.

### Indian Medical Gazette, Calcutta

August, 1918, 53, No. 8

12 Plague and Rat Destruction. F. N. White.—p. 281.
13 Rat Killing Operations in Mahableshwar. A. V. Gokhale.—p. 288.
14 Plague Inoculation. C. J. Ghia.—p. 290.
15 Antimalarial Measures in Relation to Human Carrier. W. B. Orme.—p. 293.
16 Cases of Surgical Interest. F. P. Connor.—p. 297.
17 Cerebrospinal Fever at Gaya. R. H. Pulipaka.—p. 298.
18 Case of Postoperative Tetanus. K. Prasad.—p. 299.
19 Case of Ectopic Gestation Burst into Rectum (Four to Five Months). T. C. Chatterjee.—p. 300.

### Journal of Pathology and Bacteriology, Cambridge

July, 1917, 21, No. 3

20 Formation of Bone in Calcified Epithelioma of Skin. G. W. Nicholson.—p. 287.
21 Serologic Classification of Bile Soluble Diplococci. W. Mair.—p. 305.
22 Investigation of Strains of Tubercle Bacilli from Animal Tuberculosis. A. S. Griffith.—p. 329.
23 *Cultural Reactions of Certain Anaerobes Found in Wounds. H. Henry.—p. 344.
24 Biochemistry of Pathogenic Anaerobes. B. Welchii and B. Sporogenes (Metchnikoff). C. G. L. Wolf and J. E. G. Harris.—p. 386.

October, 1917, 21, No. 4

25 *Experimental Observations on Perforating Wounds of Abdominal Viscera. H. Drummond and J. Fraser.—p. 457.
26 *Gas Gangrene of Muscle; Its Morbid Anatomy and Histology. E. Emrys-Roberts and E. M. Cowell.—p. 473.
27 Preparation of Dry Museum Specimens of Bone for War Office Collection. G. Richardson.—p. 491.
28 *Transplantation of Fatty Tissue into Spleen. Y. Matsuoka.—p. 493.
29 *Effect of Infection with Staphylococci, Streptococci and Tubercle Bacilli on Bone Marrow Transplanted into Spleen. Y. Matsuoka.—p. 501.
30 *Rapid Method for Differentiation of Amœboid Forms of Endameba Histolytica from those of Endameba Coli. D. W. Cutler and R. Williamson.—p. 511.

23. **Cultural Reactions of Anaerobes.**—The conditions of modern warfare are such that the soiling of a wound by earth or by clothing infected with fecal organisms is unavoidable. Further, the short range bullet and the shell fragment bring about a destruction of tissue which gives just those conditions that are most favorable for anaerobic growth. These two factors in combination result in the implantation of anaerobes into a focus of dead tissue and so reproduce in the living body a condition which in certain respects is comparable to an artificial culture.

In estimating the extent of the initial trauma, Henry says, one has to take into consideration, not only the amount of tissue in the wound which is directly destroyed by the missile, but also the amount of tissue in the vicinity and confines of the wound which is damaged through interference of its blood supply either by laceration of its vessels or by the pressure from hemorrhage. It is this extra destruction which makes the wound produced by the modern missile so much more formidable than that produced by the long range bullet of the South African War. Quite apart from the destruction produced by the missile in the wound itself, the early growth of

the saccharolytic anaerobes initiates a spreading devitalization process in the surrounding tissues, a process in which gas formation, edema and the appearance of autolytic enzymes all figure as causative factors.

This early period is followed by a second phase which is characterized by the development of the more slowly growing proteolytic organisms. The gas formed in the proteolytic stage of wound infection contains sulphuretted hydrogen and certain volatile bodies, and it is these which give rise to the heavy penetrating fetid odor which is such a striking clinical feature of anaerobe infected wounds. The blackening which develops under artificial conditions in meat cultures, and which indicates the formation of a sulphid of iron, is likewise to be found in wounds.

The third phase in anaerobic infection consists in the development of a toxemia, the exact nature of which is as yet undetermined. The clinical picture produced is chiefly that of a rapidly increasing circulatory failure in which death may result so abruptly as to give the impression that it has been caused by pulmonary embolism. But not a single example of the latter condition has been met in a series of over 600 necropsies on men dying from gunshot wounds. This state of rapid circulatory failure has none of the clinical features that are usually associated with acidosis, nor is there any clear laboratory evidence that the local production of acid in and about an infected wound may alter the general reaction of the circulating blood and so cause an acid intoxication of the person. Therefore, the toxemia is believed to be caused by the absorption of some degradation product of protein rather than of carbohydrate, and that it is a toxic protein derivative rather than acid which brings about the abrupt shocklike collapse of the circulation.

The last stage of anaerobic growth is that of successful bacterial invasion of the blood stream. In the majority of cases this inroad occurs just at, or immediately preceding, the death of the person.

25. **Perforating Wounds of Abdominal Viscera.**—Certain facts regarding penetrating wounds of the abdomen on which the clinical evidence is at present somewhat obscure were worked out experimentally by Drummond and Fraser. The first question considered was that of, to what extent can perforating wounds of the intestine recover without operation? The authors used hares, cats and dogs in this work. They found that bullet wounds of the intestine can be very closely simulated by cutting the intestine wall with small sharp scissors. Single artificially made wounds of small size recover, irrespective of the portion of the intestinal tract in which they may occur. Multiple small experimental wounds occasionally undergo spontaneous recovery, but, if too numerous, are fatal.

The second question considered was: If perforation of the intestinal tract occurs, is there any one portion of the intestine that has a greater tendency to spontaneous cure than another? It was found that wounds of the ileum show a greater tendency to spontaneous recovery than any other part of the intestinal tract. In the absence of omentum, spontaneous closure of intestinal wounds occurs by adhesion of neighboring coils of intestine with a plastic peritonitis. Spontaneous closure is hastened when omentum is brought into contact with the injured part. The omentum is at first widely adherent over the injured part. At the end of three days the points of adhesion are limited to the actual intestine perforation. At the end of seven days a vascular anastomosis has occurred between omentum and intestine wall. Mucous membrane at the point of injury remains prolapsed for about a week, in this was to some extent blocking up the aperture. It is eventually replaced by a plug of fibrin. At the site of perforation there tends eventually to be a small sacculation of the mucous coat through the unsupported gap in the muscular tissue. Large areas of stomach wall can be replaced by omental tissue, but restoration of the stomach epithelium does not appear to occur.

26. **Gas Gangrene of Muscle.**—As the result of studying a large number of cases of gas gangrene, Emrys-Roberts and Cowell recognize three main clinical types: *A*. The common type which occurs in wounded lying out twelve to twenty-four hours, or which develops a few hours after the first operation. *B*. The fulminating type where the patient, if untreated, may be dead in a few hours. *C*. The delayed type with a slow onset, so that the condition only becomes established several days, or even weeks, after the date of wounds. In the established cases, the clinical picture is so striking, with the pungent smell, color changes of dead muscle, and grave constitutional symptoms, that the diagnosis never remains long in doubt. It is in the earliest stages of the common type that the importance of immediate diagnosis lies. Here, if attention is paid to the local physical signs found in the wound, a diagnosis can be made before general symptoms have had time to develop. There are two types of wound of muscle in which gas gangrene is especially liable to develop. First, in deep penetrating wounds, with or without fracture of the bone, in which the main vessels may or may not be involved; and, second, an extensive surface wound, where gross laceration of the muscles has been produced, and where large amounts of infective material, such as dirt and fragments of clothing, have been carried in. The authors describe, in detail, the macroscopic and microscopic appearances of the infected muscle at different levels.

The belief is held that gas gangrene of muscle is essentially a manifestation of anaerobic infection. Extensive trauma is an important etiologic factor, as is also the symptom complex of shock, hemorrhage, and exhaustion. The toxins evolved by the growth of the anaerobes contain a myolytic substance—an acid, and, possibly also, deleterious disintegration products; in addition, they possess antichemiotactic properties toward leukocytes. The lytic changes in individual fibers are traced through the following stages during the process of advance: Blurring and eventual loss of cross striations, exaggeration of longitudinal striae, swelling of the fiber, changes in staining properties, and the formation of fluid containing perifibrillar spaces, in which are suspended the toxins and bacilli; fragmentation of the fiber, with marked lysis (which may proceed to complete disintegration); and, finally, phagocytosis by the leukocytes at and near the wound surface. Lytic changes also take place in the muscle fibers of blood vessels, though these are comparatively late phenomena. The capillaries owing to their lack of muscle constituents escape, and, as the result of free anastomoses, the blood supply is generally maintained, and diapedesis of leukocytes provided for. The formation of a fibrinous leukocytic layer at the wound surface is characteristic. The greater the number of leukocytes present, the greater the degree of neutralization of the toxins, and vice versa. The presence of this layer is associated with the absence of pus.

In cases in which the stage of recovery and arrest of the process is reached, the fibrinous leukocytic layer assumes the character of a white line of demarcation, separating dead muscle on the one hand from living muscle on the other. Subsequently this layer is cast off in the form of sloughs, and true granulation tissue takes its place. During the stage of arrest of the process the lytic changes are so abbreviated or compressed in the case of individual fibers, that the change from living striated fiber to the last stage of lysis and phagocytosis is abrupt. The production of gas is always a late phenomenon, except in the fulminating type of case. Its action is purely mechanical, and may lead to ischemia by compression within fascial sheaths, thus assisting and hastening the infective process. Although anaerobic bacilli can be demonstrated in apparently normal muscle well ahead of the process of gas gangrene, they do not assume a pathologic rôle, except when, in case of very grave infection, they are associated in the process of a bacteremia and may give rise to secondary foci. Vascular changes, apart from the effects of trauma, are absent in the advancing edge of the gas gangrene process. Regeneration of muscle fiber is extremely improbable.

28. **Fatty Tissue Transplantation Into Spleen.**—Experimental work was done by Matsuoka to ascertain whether there is any difference in the fat of transplanted fat-cells from the bone marrow and from lobulated fatty tissue proper, that is, from so-called primitive fat organs. With this end in view he autoplastically transplanted fat from the peritoneum and from the cervical region into the spleen. Autoplasty of lobulated fatty tissue from the peritoneum into the spleen was

always successful. Various regenerative processes appear in the fat-cells as early as three days after transplantation. Healing over of the transplanted fatty tissue is much more rapid than in the case of bone marrow; at the same time all fat-cells of the transplanted tissue are well developed.

Autoplasty of the so-called primitive fat organ into the spleen was also successful. Peritoneal connective tissue transplanted with the fatty tissue is converted into fatty tissue after transplantation into the spleen. Epithelial-like fat-cells of the so-called primitive fat organs are converted into common signet-ring shaped fat-cells after autoplasty into the spleen. After transplantation of fatty tissue into the spleen it is evident that connective tissue cells of the spleen may be changed into fat-cells by heterogeneous regeneration during the healing over of the graft.

From these experiments with fat transplantation it is apparent that fat cells of any kind may originate by indirect metaplasia of connective tissue cells, and that there is no conclusive evidence of the presence of so-called *sui generis* fat-cells.

29. **Action of Micro-Organisms on Transplanted Bone Marrow.**—Matsuoka infected rabbits with tubercle bacilli in order to cause chronic irritation of the bone marrow. In two cases which were examined eighty-nine and 112 days respectively after the subcutaneous injection of tubercle bacillus emulsion, the mesenteric glands showed necrosis and secondary fibrous induration. Disseminated, miliary, and also conglomerated tubercles and tuberculous pneumonia were present in the lungs. The spleen exhibited miliary, partly caseated tubercles, consisting mainly of epithelial cells. There was thus a general widespread tuberculosis partly brought about by hematogenous infection. The transplanted bone marrow in the spleen consisted principally of well developed fatty marrow, in a small part of which islets of marrow cells were to be seen between the fat cells. In another part, however, the bone marrow was diffusely cellular with uniform hyperplasia of the various medullary cells. The bone marrow in the femur had the same appearance as the transplanted bone marrow in the spleen.

The animals were dissected 185 and 190 days after transplantation, at which times, after simple autoplasty into the spleen, no evidence of myeloid deposits of the spleen substance is present. Tuberculous infection did not result in the appearance of myeloid cells. It is evident from these observations that even with such slight general functional irritations, as occurs in tuberculous infection, bone marrow transplanted autoplastically into the spleen in moderate amounts has the same reaction as the remaining untransplanted bone marrow. This view is also in accordance with the biologic healing up of the graft in the spleen.

30. **Differentiating Between Endameba Histolytica and Endameba Coli.**—With the intention of facilitating the rapid recognition of the ameboid form of the parasite, Cutler and Williamson have employed a 1:10,000 solution of neutral red in 0.85 per cent. sodium chlorid solution. A loopful of feces is emulsified in a drop of the neutral red solution on a glass slide. The preparation is covered with a coverslip and examined with one-sixth inch objective and No. 10 eyepiece. A warm stage is an advantage, but is not essential. In such a preparation the vegetative form of *E. histolytica* takes up the neutral red, and the stained amebas can readily be seen and recognized. The pink dye is uniformly distributed throughout the endoplasm, while the ectoplasm remains unstained. *Endameba coli* is not stained and appears as a light gray body. The method forms an easy and satisfactory means of differentiation between the two micro-organisms.

### Journal of State Medicine, London

September, 1918, **26**, No. 9


31 Women Workers and Health of Nation. A. M. Anderson.—p. 257.
32 Reform of Treatment of Mental Disorders. G. E. Smith.—p. 267.
33 What Steps Can Be Taken to Improve Teeth of Nation? J. G. Turner.—p. 269.


### Lancet, London

Sept. 7, 1918, **2**, No. 4958


34 Employment of Pregnant Women in Munition Factories. M. A. S. Deacon.—p. 311.
35 *Methods of Control of Fragments in Gunshot Wounds of Jaws. H. P. Pickerill.—p. 313.
36 Hemoglobinuria (Blackwater Fever). L. G. Parsons and J. G. Forbes.—317.
37 *Susceptibility of Anticorbutic Principle to Alkalinity. A. Harden and S. S. Zilva.—p. 320.
38 *Prognosis in Trench Nephritis. S. C. Dyke.—p. 320.
39 Obscure Epidemic Encephalitis. S. K. Vaidya.—p. 322.
40 Influenza and Purulent Bronchitis. A. Maude.—p. 324.
41 Influenza Outbreak. C. W. Wirgman.—p. 324.
42 Successful Use of Intravenous Injections of Antimony Tartar Emetic in Bilharziosis. J. B. Christopherson.—p. 325.
43 Case of Acute Delirious Mania; Recovery. F. Wyatt-Smith.—p. 327.


35. **Controlling Fragments in Gunshot Wounds of Jaws.**—Pickerill maintained that there is, or should be, no best method of controlling fragments. Each case should be treated individually, according to its requirements. Control and not absolute immobilization of the fragments should be the aim of any method of treatment. The utilization of function and perhaps slight mobility of the fragments from as early a time as possible is the best stimulus to union. A conservative line of control should be adopted whenever possible; that is, loose teeth and small fragments should be retained and controlled with function rather than be sacrificed to obtain a quick but inferior result.

37. **Susceptibility of Anticorbutic Principle to Alkalinity.**—The experiments made by Harden and Zilva show definitely that alkalinity has a very deleterious effect on the anticorbutic potency of orange juice. Most anticorbutic vegetables are either neutral or very slightly acid, and any culinary manipulation which entails alkaline treatment, even to a slight degree, will be instrumental in the destruction, if not of the entire, at least of a significant part of the anticorbutic potency of such vegetables. When orange juice was made twentieth normal alkaline it was found that it did not prevent or delay the onset of scurvy.

38. **Prognosis in Trench Nephritis.**—Evidence presented by Dyke seems to indicate that the condition known as trench nephritis differs little from nephritis as met with in civilian practice except in the greater frequency of its occurrence, and that it is either a primary acute nephritis or an exacerbation of preexisting disease, induced by fatigue and exposure.

### Medical Journal of Australia, Sydney

Aug. 10, 1918, **2**, No. 6


44 Malarial Survey of Township of Cairns. A. Breinl and F. H. Taylor.—p. 109.
45 Plea for Adequate Recognition of Part that Can Be Played in Shell Shock by Septic Foci. S. Pern.—p. 115.
46 War Surgery. H. Flecker.—p. 116.


Aug. 17, 1918, **2**, No. 7


47 Treatment of Strabismus. E. T. Smith.—p. 135.


### Annales de Médecine, Paris

May-June, 1918, **5**, No. 3


48 *Familial Hypertrophic Neuritis. P. Marie and Bertrand.—p. 209.
49 *Voltaic Nystagmus. L. Bard.—p. 239.
50 *Origin of Albuminuria. P. Merklen.—p. 256.
51 *Sign of Adhesive Mediastinitis. E. Lenoble.—p. 267.
52 *Tuberculous Cavities with Few Bacilli. C. Mantoux.—p. 307.


48. **Familial Hypertrophic Neuritis.**—Marie and Bertrand report with eighteen illustrations some interesting histopathologic findings at necropsy in two cases of familial hypertrophic neuritis.

49. **Electrically Induced Nystagmus.**—Bard discusses the nystagmus and other phenomena induced by placing on the temples the electrodes from a battery. The differences between the phenomena thus induced and those from thermic stimulation of the labyrinth throw light on the mechanism of the nystagmus, etc., under these conditions, as he explains in detail. The results from the two methods usefully supplement each other.

50. **Albuminuria in Soldiers.**—Merklen found complications on the part of the kidneys directly after acute infectious diseases in 17 per cent. of the men examined, irrespective of whether the men had been serving at the front or had never reached the trench line. In six of eighteen men the albuminuria had developed after acute tonsillitis. There was a history of some old acute infectious disease in 40 per cent. of the eighty men from the front and in 50 per cent. of the thirty others. In 22 per cent. there was primary nephritis

occurring in previously healthy men. In two of the men the albuminuria developed after antityphoid vaccination. Merklen's final conclusion is that chronic albuminuria which may be well borne in civilian life is extremely liable to give trouble under the stress of military life, even of limited service.

51. **Signs of Adhesive Pericarditis.**—Lenoble concludes from his study of eight cases of adhesive mediastinitis that there are no pathognomonic signs of it. Operative measures are called for when access to the adhesions is possible. The diagnosis is facilitated whenever certain radiographic fixed shadows show a special intensity. Also by the thickening of the pleura detected on attempting to puncture it, the needle meeting resistance as if from leather or thick cardboard.

52. **Tuberculous Cavities with Few Bacilli.**—The *Annales* has joined the *Lyon Chirurgical* and a number of other French, Italian and Swedish Journals which now are giving a brief abstract in English of each article. The abstract accompanying Mantoux' article is given herewith complete. "There are some chronical cavitarious tuberculous patients far from any evolving push, of which the repeated examination of the spits, even preceded by homogeneisation and centrifugation, is unfit for disclosing the presence of the Koch-bacillus; the only inoculation to the guinea-pig identifies those cavitarious paucibacillarious (with few bacilli) tuberculoses. It is necessary, with every sick suspected of tuberculosis, to have recourse of the triple stethacoustical, bacteriologic and radiologic examination. The three methods are equally indispensable; one corrects the errors of the other; an examination of a tuberculous is incomplete, if it does not rest on this diagnostical tripod."

### Archives Médicales Belges, Paris

July, 1918, 72, No. 7

53 *Spirochete Fetid Bronchitis. P. Nolf and P. Spehl.—p. 1.
54 Chronic Sinusitis. C. Sterckmans.—p. 20.
55 Vision and Fitness for Service. Moret.—p. 47.
56 *Night Blindness in Soldiers. M. Danis.—p. 63.
57 *War Wounds of Chest. R. Lefebvre.—p. 78.

53. **Spirochete Bronchitis.**—Nolf and Spehl have encountered eight cases of bronchitis which resembled Castellani's bronchospirochetosis and also Violle's spirochete bleeding bronchitis but differed from both by the extremely fetid character of breath and sputum. There was a hemorrhagic tendency only in one of the cases. The bronchitis was primary in six of the eight cases, and one of these men died. The onset was stormy, with progressive weakness, dyspnea and cyanosis, and numerous spirochetes in the sputum. The duration of the disease was over a month at least; in the fatal primary case, seventy-three days, and in the two secondary cases, ten days and two months.

56. **Night Blindness in Soldiers.**—Danis reviews the literature on hemeralopia and states that he has encountered it in 7.52 per cent. of 2,700 Belgian soldiers with eye disturbances of various kinds. There seems to be a recrudescence of it in the men on active service. Alcohol is totally proscribed on the Belgian front, and the coffee is made weak, but the men smoke a great deal. No central scotomas were discovered. Probably the hemeralopia in many cases is merely the revealing under army conditions of an old unsuspected tendency to night blindness, but there is no doubt that the physical and emotional stress of the war has sometimes induced essential hemeralopia by some disturbance in the local circulation, rendering the retina unable to adapt itself in the obscurity of the night. These men should be spared night service, but simulation must be guarded against.

57. **Wounds of the Lung.**—Lefebvre's long study of the immediate complications of wounds of the lung concludes by urging immediate suture of the pleura as almost the routine procedure, like a laparotomy for an abdominal wound. Surgical closing of the breach in the wall immobilizes enough to favor hemothorax, and the compression from this may check further hemorrhage. Moving a man wounded in the chest is even more serious for him than with an abdominal wound. If possible, he should be kept for two or three days. Shock in men wounded in the chest simulates grave anemia. Repose and immobilization are the best treatment. If the heart is much displaced, it may be advisable to puncture. It may prove possible to arrest hemorrhage by artificial pneumothorax. The Italians have used this method considerably for war wounds of the chest, and laud the results obtained. It seems logical to get rid of the extravasated blood, liable to set up infection, and replace it with a sterile artificial pneumothorax to keep up the compression. If the hemorrhage persists, thoracotomy and suture of the lung are indicated. With increasing experience this will probably be done earlier to arrest hemorrhage and not be left for the last resource. The immediate advantages of suturing the pleura are so great that the danger from leaving a foreign body in the cavity can be overlooked. Local anesthesia or simply morphin is preferable to general anesthesia. The ribs can be spread apart, to enlarge the opening, resecting the ends of a fractured rib.

### Archives de Médecine des Enfants, Paris

September, 1918, 21, No. 9

58 *Microbic Associations in Meningitis. Condat.—p. 449.
59 Acute Tuberculous Nephritis. L. Petitpierre.—p. 467.
60 *Phlegmon in the Orbit. Condat.—p. 473.
61 Present Status of Acrocephaly. J. Comby.—p. 476.

58. **Mixed Meningitis.**—Condat reviews the experiences with 47 recent cases of meningitis in Comby's service. She has compiled others, bringing the total to 168 cases, with mortality of 31.5 per cent. A number of the patients were young infants who always present an exceptionally high death rate. All but 11 of her 47 cases were meningococcus cases, with 25 per cent. mortality. Treatment was always by intraspinal injection of 15, 20 or 30 c.c. of antimeningococcus serum, according to the age of the child, whenever the lumbar puncture fluid looked turbid. If the meningococcus is found, the injection is repeated the next day and again after forty-eight hours. Two injections answered the purpose in 3 cases; three were required in 12 and four in 6. In 9 cases from five to ten injections were made; in 3 cases a tardy relapse or recurrence compelled a new series of injections. No special precautions were taken against serum sickness and except for an occasional rash or slight arthralgia there were no mishaps from it. She keeps up the serotherapy so long as the fluid is turbid; recovery followed in some cases which had seemed absolutely beyond relief. To start the serotherapy early is more important than the type of meningococcus involved. Everything should be done to simplify it and render it available for every practitioner. Any attempt to mix serums from different strains merely renders the serotherapy more complicated. This should be left to institutions. Even at the best it may delay proper treatment.

60. **Phlegmon in Orbit.**—There had been first a rhinopharyngitis, then ethmoiditis and then the phlegmon in the left orbit. The general condition kept good and the pus broke through spontaneously with complete recovery during the several months to date.

### Bulletins de la Société Méd. des Hôpitaux, Paris

May 31, 1918, 42, No. 19

62 *Tardy Relapses in Meningitis. A. Netter.—p. 527.
63 Parameningococcus Meningitis and Septicemias. Brulé.—p. 537.
64 Subacute Lethargic Encephalitis. P. Sainton.—p. 543.
65 Heart Block. C. Laubry and C. Esmein.—p. 550.
66 Intestinal Bilharziosis. P. Ameuille and G. Magne.—p. 553.
67 *Hemoglobinuria in Malaria. P. Ameuille, M. Sourdel and A. P. Marcorelle.—p. 556; R. Porak.—p. 559.
68 *Intravenous Injection of Hexamethylenamin. Loeper and L. Grosdidier.—p. 566; Loeper and C. Wagner.—p. 569.
69 Periarterial Sympathectomy in Raynaud's Disease. L. Veillet.—p. 571.

62. **Tardy Relapses of Meningitis.**—Netter says that among 350 meningitis patients, 1.14 per cent. had a relapse in from one to nearly three months after apparent recovery. In two infants intercurrent measles probably brought on the relapse. Some of his and others' cases suggest that antityphoid vaccination may produce a reaction in the organism which might favor the proliferation of otherwise harmless meningococci slumbering in the nasopharynx. In certain exceptional cases, the reaction to an antityphoid injection may simulate meningitis. In one case meningitis was soon followed by paratyphoid B and this in turn by meningitis again, with final recovery under serotherapy. Sainton reported syncope after

an intravenous injection of antimeningococcus serum, which required artificial respiration to revive the patient.

67. **Hemoglobinuria in Malaria.**—These two communications describe several cases of malarial *bilieuse hémoglobinurique* and explain the disturbances as the result of a kind of auto-anaphylaxis. This auto-anaphylaxis is of a physical nature, and it is the initial phenomenon of the hemoglobinuric jaundice. The massive destruction of red corpuscles occurs suddenly and rapidly and the blood pressure falls, but the reds that escape display normal resisting powers, and no hemolytic substance can be detected in the serum nor in extracts of various organs. The liver and kidneys were found apparently sound. A small dose of quinin may start the auto-anaphylaxis in those hypersusceptible to it, but it occurs in others in the absence of quinin. The practical conclusion of the articles is that *bilieuse hémoglobinurique* should be treated by anti-anaphylaxis measures such as have proved effectual under other conditions. The blood serum taken during a malarial attack might be used in the anti-anaphylaxis. This might serve to "consolidate the hemolytic complex" as Widal, Abrami and Brissaud have accomplished in paroxysmal *hemoglobinuria a frigore*. One of the patients recovered but two others died, the massive destruction of the red corpuscles having induced extreme anemia with fatal anoxemia. Death occurred more rapidly than is the case from anemia alone.

68. **Intravenous Injections of Hexamethylenamin.**—Loeper and Grosdidier determined the relative harmlessness of hexamethylenamin in injections by the vein in rabbits and then they applied it in typhoid, pneumonia, nephritis and liver disease. The action of the drug by the vein, they say, is infinitely superior to that by subcutaneous injection or by the mouth. It had an unmistakably favorable influence on the temperature, the general condition and on kidney functioning. In fifteen pneumonia cases all were improved and cured; in five the disease was aborted, defervescence occurring the following day. In septic bronchopneumonia the temperature declined more gradually but the general condition improved. Very slight influence was noted in the pleural streptococcus cases and it was inconstant in the secondary streptococcemias. Rabbits bore perfectly injection by the vein of 0.5 gm. per kg. and man seems to bear without harm 1.5 to 2 gm. The dose was 0.25 gm. to 1 c.c. sterilized water, the solution prepared cold, with intermittent sterilization. The volume introduced should not be over 6 or 8 c.c., that is, about 2 gm.

The same treatment was applied in serofibrinous pleurisy with good effects, slow but progressive. The results seemed to be the same when the drug was injected directly into the pleural cavity. In tuberculosis, they say that a series of twenty injections seemed to induce *très réelles améliorations*. One young soldier with nephritis and dropsy, pneumonia and sputum swarming with tubercle bacilli was given 21 gm. of the drug in two series of seven injections, and notable improvement followed. They add that of course this medication is only palliative, but the experiences to date indicate that it acts on the general reactions, the febrile, the toxic and the septic. It is a sedative but without depressing action, and it seems to reduce the intoxication from the infection wherever the infectious process may be located.

### Journal de Médecine de Bordeaux

August, 1918, **89**, No. 8

70 *Disturbances in Nails after War Wounds. A. Le Dantec.—p. 215.
71 *Operations for Wounds of Nerves. A. Hesnard.—p. 218.
72 Pseudo-Tuberculosis of Peritoneum. J. Vitrac.—p. 224.
73 Suggestions for Rural Hygiene. Darbouet.—p. 226.

70. **Finger Nail Sign of Irritative Neuritis.**—Le Dantec has frequently noticed as a trophic disturbance in the finger nails after a war wound of the arm, the development of a roll of flesh under the outer end of the nail. This *bourrelet sous-unguéal* is a warning of the presence of some scrap of projectile or gravel in the tissues. The matrix, the bed of the nail and the nail itself all seem to be subject to a manifest process of hyperplasia. Percussion of the nerve its entire length will generally locate the foreign body, the cause of the trouble. This is usually where the nerve is embedded in cicatricial tissue. The percussion induces an intense tingling pain to the tip of the fingers or toes. He has succeeded in releasing the adherent nerve by daily potassium iodid ionization of the spot, the electrodes applied to both sides of the limb, supplemented by massage and exercise to break up gradually the adhesions. In one case he abolished the pain by injecting alcohol (70 per cent.) into the adherent cicatrix. As the cause for the irritative neuritis is removed, the protuberant flesh under the nails disappears with it.

71. **War Wounds of Nerves.**—Hesnard reviews the indications and contraindications for operations on peripheral nerves as determined from the immediate and remote experiences at the Bizerte *centre neuro-psychiatrique* of which he is chief. Good results were seldom obtained when the interval was over four months, and the best outcome was with intervals of from one up to four months. The operation might even be done the very day of the war wound. He thinks that the danger of an aseptic operation near a recent or slightly infected wound may have been exaggerated. He has witnessed again and again the excellent reunion of surgical wounds made for intervention on nerves a few centimeters from a war wound in evolution and previously infected. But such haste is not indispensable, and he advocates operating regardless of the interval when clinical examination shows the absence of complete or very pronounced degeneration of the wounded nerve and the muscles which it innervates. By "degeneration" he does not mean the degeneration response to electric tests. This may be encountered with superficial and curable injuries. Only anatomic neuromuscular degenerescence indicates that the nerve is lost beyond redemption, and this may take eight or ten months; in some cases up to one year or three years. Some stop short of complete degeneration and finally recuperate spontaneously. Suture after the nerve had been completely severed resulted in a cure in two out of fifteen cases, and improvement only in two other cases. Certain nerves recuperate earlier and more completely than others; in this order he lists the radial, the external sciatic, the ulnar, the internal sciatic, the median, and the trunk sciatic nerves.

### Journal d'Urologie, Paris

August, 1918, **7**, No. 3

74 *Kidney Stones. Rochet and Boulouneix.—p. 225.
75 *Autoplastic Procedures for Urethra Fistulas. F. Cathelin.—p. 267.
76 *Bilharziasis of Bladder. E. Desnos.—p. 319; Marion.—p. 325.
77 Fragment of Penny Driven into Bladder by Projectile. A. Mendaro.—p. 329.
78 Concretion around Bullet in Woman's Bladder., Removed Ten Years after Wound. S. N. Oeconomos.—p. 333.
79 *Radium Treatment of Cancer of Prostate. G. Marion.—p. 335.
80 *Transactions of Urologic Conference.—p. 337.

74. **Kidney Stones in Soldiers.**—This report from a *centre urologique* states that in the total of thirty-four cases of kidney stones encountered in the course of three years, the kidney was infected in all but five. The remarkable clinical latency of stones in the kidneys as long as the kidney is not infected is shown by many of the cases. The unhygienic conditions at the front predisposing to autointoxication, and the jolting over rough roads, etc., damage kidneys already impaired by the presence of stones, and if an infectious process is set up this first attracts attention to the kidneys. The experiences related teach the importance of radiographing the whole urinary apparatus when there are even vague complaints in respect to the kidneys. Ambard's ureosecretory constant showed a marked turn for the better after removal of the stones.

75. **Fistulas of the Urethra.**—Cathelin devotes nearly fifty pages to analysis of the different war wounds of the external genitals and the best means for repair. His article is accompanied by twenty-seven illustrations, and he emphasizes the necessity in operating always to be ultra conservative, as every minutest scrap of skin is extremely important for the plastic operation later. Even when the penis has been almost completely severed, he has succeeded in getting it to heal in place. He gives minute directions for the various plastic operations and calls attention in particular to his method of curing a fistula by turning in the skin. (It was briefly described with an illustration in THE JOURNAL, Aug. 17, 1918, p. 606.) He has applied it in thirteen cases of war fistulas with complete and rapid cure in a few days, the men soon

returning to service. In nine cases of inflammatory fistulas the cure was prompt and complete in seven, but the tissues were too pathologic in the other two cases. This technic is applicable to fistulas anywhere, in the intestine, salivary glands, bladder, etc. He regards it as destined to a future, "a great progress which we owe to the war." This *inversion cutanée avec section bipolaire* is the ideal method, he reiterates, for treating a fistula into the urethra as it does not encroach on the urethra itself at all, and the cure is permanent without ulterior stenosis. He warns that a retention catheter is disastrous after these autoplastic operations. The intermittent use of the catheter answered the purpose in his cases.

76. **Bilharziasis of the Bladder.**—Desnos reports a case in which there have been no further symptoms during the two years since he gave a ten months' course of diathermy treatment. The cystoscopic findings now show clinically normal conditions in the bladder. The application of the high frequency current was somewhat painful, so that he could not cauterize more than ten or twelve of the minute vesicular elevations in the bladder walls at one sitting. The only danger with this treatment is the possibility of hemorrhage as the little eschars drop off in about two days. There was only slight hematuria in his case.

Marion's patient complained only of his right kidney, which proved to be absolutely sound. Fifteen little bleeding elevations were seen in the bladder walls, while the ureter urine was normal on both sides. The patient clamored for an operation on his right kidney but Marion compromised by resecting the little polypous bunches through a suprapubic incision, and cauterized the site of each. At once all symptoms subsided and the cure has been complete to date.

79. **Radium Treatment of Cancer of the Prostate.**—Marion punctures to the prostate with a hydrocele trocar, a little to one side of the median line of the perineum, guided by the finger in the rectum. The radium tube, mounted on a silver wire, is then introduced in place of the trocar. The same procedure is repeated on the other side. In forty-eight hours after withdrawal of the radium tubes the puncture holes are healed and the patient can get up and return to business.

80. **Conference of Army Urologists.**—The men in charge of the French "urologic centers" held a conference recently at Paris. Two questions had been appointed for discussion; the treatment of war wounds of kidney and ureter, and autoplastic procedures for traumatic fistulas of the urethra. The transactions are reported here in full. The leading address on the second subject is summarized in Abstract 75 above.

### Presse Médicale, Paris

Aug. 22, 1918, 26, No. 47

81 *Scarlatinal Endocarditis. Nobécourt.—p. 429.
82 *Malarial Mammitis. H. de Brun.—p. 430.
83 Extraction of Projectiles in Skull. H. Béclère.—p. 431.
84 Sulphur-Oil Injections for Psoriasis. L. Bory.—p. 432.

81. **Scarlatinal Endocarditis.**—According to Nobécourt's experience, scarlatinal endocarditis is more liable to run into a chronic phase in children than in adults. In seven cases in soldiers under 24 the heart sounds returned to normal in from thirty to fifty days in five of the men. Others have reported similar experiences, showing about 28.5 per cent. left with persisting valvular trouble. Tardy tachycardia may occur after scarlet fever with or without the endocarditis. In one soldier acute articular rheumatism developed at the twenty-seventh day of scarlet fever, and mitral endocarditis followed, with pericarditis, pleuritis and phlebitis in left leg. Another had acute articular rheumatism the fifth day of the scarlet fever, mitral endocarditis the seventh, and acute nephritis the thirtieth. Scarlatinal endocarditis is of the simple type. The best testimony to an infectious endocarditis is the existence of severe secondary infections, a tardy infectious syndrome. In conclusion he reiterates that the agent of acute articular rheumatism and the agent of scarlet fever can determine clinically identical affections of the heart.

82. **Malarial Mammitis.**—De Brun has encountered sixteen cases of a characteristic swelling and pain in the mamma on one or both sides in soldiers with a severe form of malaria, or the mammitis may develop as the first manifestation of the malaria. The men button their suspenders farther along on that side, and this "suspenders sign," or the pain from lying on the breast in sleeping may be the first thing to call attention to the malaria. The mammitis persisted for six and for eight months in two of his cases; only exceptionally was it as brief as twelve and fourteen days. No tendency to sclerosis later was detected in any instance. All the men had ordinary tertian malaria. In one the mammitis developed three months after contracting the malaria; in one not until after fourteen months. No action on the mammitis was apparent from quinin, even pushed with 2 gm. a day, and the usual sedatives had little effect in reducing the pain.

### Revue de Chirurgie, Paris

Jan.-Feb., 1918, 37, No. 1-2, Pub'd August

85 *War Wounds of Wrist. V. Combier and J. Murard.—p. 1.
86 *Conservative Treatment of Wounds of Knee. J. Delmas.—p. 49.
87 *Amputation of Thigh. J. Martin.—p. 104.
88 *Rupture into Peritoneum of Echinococcus Cyst. F. Dévé.—p. 125.
89 *Laws Regulating Healing of Skin Wounds. A. Lumière.—p. 168. Conc'n.

85. **War Wounds of Wrist.**—The indications for operation are deduced by Combier and Murard from the ultimate results of their treatment in twenty-seven cases. With a suppurative process, the effects of treatment are not very brilliant. In their four cases of this kind, amputation had to be done later in one, but one of the others has good use of his hand seven months after the total carpectomy. It was done the twenty-eighth day after the seton wound of the left wrist.

86. **Conservative Treatment of Wounds of Knee.**—Delmas is an advocate of extreme conservatism in treatment of wounds of the knee. He says that Willems' method of immediate and active mobilization of the knee (described in these columns on page 1009, abstract 23), has resulted in more rapid and more perfect cures in the cases in which asepsis can be counted on, than with other methods. Otherwise, in simple cases Delmas' practice is a lateral arthrotomy. It is easy then to open up the joint by severing the patellar ligament if the lesion is found extensive.

87. **Amputation of the Thigh.**—Martin discusses the indications, the technic and the results in fifty-three cases. He says it is not a grave operation when done correctly and rapidly under general ethyl chlorid anesthesia. The shock of the wound is the main thing; the operative shock is insignificant in comparison. The prognosis depends on the wound or the gas gangrene compelling the amputation. The latter, he declares, does not aggravate the prognosis, but the amputation cannot cure unless it removes the septic focus entire. Before September, 1915, he had to amputate for septicemia in seventeen cases but since then only in eight cases. The mortality in the first group was 41 and in the second 12.5 per cent. Salvation with a penetrating wound of the knee lies in immediate extensive exploration of the knee and early resection if demanded. A rebellious purulent arthritis calls for amputation when the reactions of the organism demonstrate that the arthritis is getting the upper hand. The application of these principles has brought his mortality from 44.4 per cent. down to zero. When septicemia after a war wound of the leg or thigh shows no signs of yielding to treatment, he bows to the inevitable and amputates in time, and thus has brought the mortality down to zero in this category also.

88. **Rupture of Echinococcus Cyst in Biliary Apparatus.**—Dévé refers to what he calls *choleperitoine hydatique*, that is, a torpid effusion in the abdomen consecutive to the accumulation in the peritoneal cavity of nonvirulent bile escaping from a ruptured echinococcus cyst in the liver. He devotes forty-two pages to the various aspects of this phenomenon and its consequences. The possibility of an echinococcus cyst as the cause of the accumulation of bile in the peritoneal cavity should never be forgotten. He warns that multiple cysts should always be suspected, and the permeability of the biliary passages verified before concluding the operation. When an accumulation of bile in the peritoneum has become encysted, it is dangerous and useless to attempt to remove it. But it is important to destroy any elements liable to start new cysts, and he relies on ether for the purpose, convinced that it has a specific destructive action on the scolex. Copious ether lavage of the peritoneum is thus advisable when a cyst

has recently ruptured into it. Later than this, the granulations or vesicles showing inoculation of the peritoneum, should be crushed by rubbing with a sponge and the site cauterized with 1 or 2 per cent. formaldehyd.

89. **Laws of Healing of Wounds.**—Lumière's measurements of 3,000 war wounds have shown that they heal better and more rapidly when the dressings are changed daily and are not allowed to stick to the tissues. To keep them from sticking, he covers the wound with gauze of 2 mm. mesh, impregnated with petrolatum. This allows the secretions to escape while the dressing above it can be changed without injuring the tissues. Of all the numerous antiseptics he has been testing, iodized starch insured a more rapid repair of tissue than any other antiseptic.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

Aug. 31, 1918, 48, No. 35

90 *Traumatic Nephritis. H. Wildbolz.—p. 1153.
91 *Nephrectomy for Traumatized Kidney. P. Reinbold.—p. 1161.
92 Ascaris Ileus. A. v. Beust.—p. 1166.

90. **Traumatic Nephritis.**—Wildbolz reports a case in which after a severe contusion of one kidney region the man did not feel entirely well and after a few months 0.5 per thousand albumin was found in the urine, with other signs of nephritis. As catheterization of the ureters showed functional disturbance of the same degree in both kidneys, there do not seem to be grounds for incriminating the contusion as responsible for the nephritis. Only in 3 of a number of such cases on record were the ureters catheterized separately; in 2 the albuminuria was found restricted to the traumatized side. The injury had been from a horse's kick. After transient hematuria there were no further symptoms in one case until five months later albumin and tube casts were found continuously in the urine but only from the kidney on the damaged side. The connection with the trauma was regarded as established, and compensation to 30 per cent. was awarded, as also in another case in which the unilateral albuminuria had developed and kept up continuously after the injury. Wildbolz adds another case to this group. The young soldier fell in carrying a heavy shell and it hit him in the left loin region. Albumin and tube casts were found in the urine at once and continuously for months thereafter. As the pathologic urine was restricted to the traumatized side, the kidney was decapsulated and in less than two weeks the urine was normal once more. The kidney had evidently been squeezed between the shell and the spine, with the result that the capsule had developed cicatricial tissue which pressed on the kidney parenchyma and dragged on or compressed the vessels in the kidney hilus. This mechanical action was felt more severely by the thin walled veins than by the arteries, so that venous hyperemia resulted. As soon as the decapsulation made possible the free escape of the blood, the kidney cells resumed normal functioning. In another case an inflammatory intestinal process had led to inflammation in the perirenal connective tissue with resulting cicatricial impairment of the circulation in the kidney in question. The venous hyperemia in this case was not intense enough to induce continuous albuminuria and hematuria. They developed only after physical stress and they subsided each time under repose, and disappeared permanently after resection of the kidney capsule.

91. **After Nephrectomy for Traumatised Kidney.**—Reinbold comments on the constantly excellent health of a man whose left kidney had been ruptured by a fall and removed at the time, seven years ago. He changed afterward from the trade of mason to one requiring less physical exertion. Trades exposing to occupational poisoning should also be avoided after nephrectomy. The disability is estimated in France at 40 to 50 per cent.; in Germany, from 35 to 50 per cent. This case was settled on a 40 per cent. basis.

### Annali di Ostetricia e Ginecologia, Milan

April, 1917, 39, No. 4, Pub'd November

93 *Status Epilepticus in Pregnant Women. A. Tomiselli.—p. 135.
94 Operative Treatment of Uterine Fibromyomas. A. Cernezzi.—p. 143.

May, 1917, 39, No. 5

95 *The Pituitary and Diuresis in the Pregnant. A. Gentili.—p. 173.

93. **Status Epilepticus in the Pregnant.**—Tomiselli's case teaches that convulsions in a pregnant woman must not be ascribed to eclampsia as a matter of course. The tongue may be bitten in an eclamptic convulsion, and eclampsia may develop without edema or characteristic urine findings. It rarely happens that epilepsy manifests itself for the first time during a pregnancy, although Resinelli has reported a case of the kind. Others are cited who have seen epileptic seizures arrested during the pregnancy or aggravated by it. Energetic treatment with bromids may tide the patient past the danger point, while if the epileptic seizures are mistaken for eclampsia, and treatment is addressed to the uterus, this adds to the cortical irritation by new reflex stimuli. Tomiselli pushed potassium bromid, giving a little by the mouth and 8 or 10 gm. by the rectum, with morphin subcutaneously. The young woman had twenty-six seizures in the first thirty-six hours but then they subsided. She was given 3 or 4 gm. of the bromid daily for a time and for the two weeks preceding term. The status epilepticus was thus conquered.

95. **The Pituitary Body in Pregnancy.**—Gentili's long study of the relations between diabetes insipidus and mellitus in the pregnant is based on a case with polyuria of over 6 liters at the sixth month. It became associated with osteomalacia a month later, rebellious to all measures, including pituitary treatment. At the eighth month premature delivery was induced, and all the symptoms gradually subsided, aided by epinephrin treatment.

### Policlinico, Rome

August 11, 1918, 25, No. 32

96 Success of Perivasal Sympathectomy for Caumlgia. O. Tenani.—p. 749.
97 *Bipp Used in Italy Since 1908. E. Calandra.—p. 752.
98 Welfare Work for Infants. P. Pelliccioti.—p. 753.

97. **"Bipp" Used in Italy Since 1908.**—Calandra states that the drawbacks of "bipp" as now used in western Europe would be obviated if his directions were followed, as he published them in his first communications on the advantages of this method of treating wounds. His formula is 10 gm. chemically pure bismuth subnitrate, free from traces of arsenic; 10 gm. petrolatum or white wax; 4 gm. iodoform, and 15 gm. olive oil or more or less to modify the consistency to suit the wound. The oil and petrolatum are heated to boiling, the bismuth is stirred in, and the mixture cooled to about 70 C., and the iodoform is then added. Before using, the whole is heated again to about 70 C. He has never had any toxic action from this paste while its sterilizing and healing properties have been demonstrated by years of experience.

### Riforma Medica, Naples

July 27, 1918, 34, No. 30

99 *Amputation of Breast. I. Tansini.—p. 586.
100 Blood Picture with Paratyphoid B. C. Cantieri.—p. 589.
101 Evolution of Malaria Plasmodium. G. Cavazzani.—p. 592.
102 Rehabilitation of War Cripples. G. Loriga.—p. 592.
103 Fetor of the Breath. B. de Vecchis.—p. 593.
104 Dilatation of Esophagus. E. Aievoli.—p. 594.

99. **Amputation of Breast.**—Tansini gives an illustrated description of his method of cutting a large U-shaped flap in the skin of the back, the base reaching from the base of the axilla to a point on the scapula. The flap is cut long and broad enough to cover the raw area left after amputation *en bloc* of the breast and the glands in the axilla. This flap is then drawn to the front, stretching the skin at the base of the arm until the flap fits over the entire raw area. The gap left in the back is covered by stretching and drawing up the skin from the middle of the back in a nearly vertical suture. There is no dead space, and no necessity for drainage nor for a compressing bandage. Recent reexamination of patients whose breast had been removed on account of cancer five or seven years ago has confirmed anew the superiority of this technic. It has enlarged the limits of operability, he insists, while the removal of all the skin of the breast is a better guarantee against recurrence, as also the use of the greater dorsalis instead of the pectoralis, as Ruth proposes. The muscle flap used has scanty lymphatic connections and is thus better protected against recurrence.

### Brasil Medico, Rio de Janeiro

July 20, 1918, 32, No. 29

105 Sarcosporidiosis in Cattle. G. Hasselmann.—p. 225.
106 Infant Welfare Work at S. Paulo. C. Ferreira.—p. 225. Conc'n.

### Progresos de la Clinica, Madrid

July, 1918, 6, No. 67

107 Histogenesis of Ocular Muscles. F. P. del Fresno.—p. 5.
108 *The Vascular Crises with Aortic Disease. B. L. Duran.—p. 28.
109 Influence of Acute Infections on the Hearing. Prada.—p. 31.
110 Present Status of Leprosy. S. de Buen.—p. 33.

**108. Vascular Crises with Arteriosclerosis.**—The attacks or vascular crises may occur in the brain, the chest, the abdomen or in the legs. The latter group is formed of the cases of intermittent claudication. The chest group comprises angina pectoris and acute edema of the lung. The abdominal crises occur after physical exertion or emotional stress, and they seem to be independent of the meals. In the cerebral group there may be attacks of sudden unconsciousness for a few minutes, but there are no convulsions. The pallor is followed by vasodilation and sweating as consciousness returns. In a case described, these attacks return every three or four weeks. They gradually became longer and they left a little difficulty in speech and twisting of the head, which persisted for a week or so. They first developed at the age of 50. In other cases these lipothymias were accompanied with transient monoparesis or hemiparesis, amnesia or aphasia. Treatment should aim to ward off excitement and stimulants for the circulation, while reducing autointoxication to render the nervous system less irritable and reduce the blood pressure. Tobacco and coffee seem most injurious of all stimulants in these cases. With acute pulmonary edema, Duran always found venesection useful, supplemented by tonics for the heart hampered by the pressure. In the cerebral type stimulation of the peripheral circulation is the main thing. Carbonated baths are useful in the incipient cases of arteriosclerosis.

### Revista de Medicina y Cirugia, Havana

July 25, 1918, 22, No. 14

111 *Genital Prolapse. J. A. Presno y Bustamy.—p. 379.
112 Traumatic Aneurysm of Radial Artery. E. Stinecr.—p. 385.

**111. Treatment of Genital Prolapse.**—Presno has applied with excellent results in six cases of severe genital prolapse the method of subtotal hysterectomy with fixation of the uterine cervix to the abdominal wall. He passes stout catgut through the stump of the cervix diagonally, from each side, and draws it up and fastens it to the abdominal rectus muscles. The operation is completed by colpoperineorrhaphy.

### Revista Medico-Cirurgica do Brasil, Rio de Janeiro

June, 1918, 26, No. 6

113 Public Health at Rio in 1917. C. Seidl.—p. 243.

### Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

July 20, 1918, 2, No. 3

114 Visual Acuity as Gage for Retina Function. H. Snellen, Jr.—p. 240.
115 Error in Estimates of Enzyme Functioning. Visser.—p. 245.
116 Danger of Troops Spreading Malaria. Hoogstag.—p. 252.
117 Scabies. A. H. L. Orts.—p. 255.
118 "Spanish Influenza." H. J. Kloosterman.—p. 256.

### Hospitalstidende, Copenhagen

July 24, 1918, 61, No. 30

119 Two Operative Cases of Solid Double Rudimentary Uterus. S. A. Gammeltoft.—p. 977.
120 Progressive Lipodystrophy; three Cases. A. V. Neel.—p. 989.
121 *Pyelography. F. Rydgaard.—p. 996. Conc'n.

Aug. 7, 1918, 61, No. 32

122 *Colon Bacillus Infection of Male Genital Organs. T. Rovsing.—p. 1041. Commenced in No. 31, p. 1009.
123 With Danish Red Cross in Finland. O. Chievitz.—p. 1052. Cont'n.

**121. Pyelography.**—Rydgaard concludes this comprehensive survey of international literature on pyelography by emphasizing that the present measures for pyelography are too dangerous for use with pathologic conditions in the kidney. Even with merely displaced and deformed kidneys or abdominal tumors, ordinary roentgen examination gives equally conclusive findings without the danger from the pyelography. Hence, he reiterates, the latter method has no justification for its use in the clinic until some substance can be found which will prove equally effectual for pyelography without the danger of irritating the kidney tissue, which is inherent in the present technic.

**122. Blood Borne Colon Bacillus Infection of Male Genital Organs.**—Rovsing describes the clinical picture, diagnosis and treatment of these infectious processes as they affect the epididymis, the seminal vesicles or the prostate, giving several case histories of each type. In his five cases of coli abscess in the prostate the diagnosis had been cystitis in each case. In one the course was so stormy that he had to evacuate the abscess through the perineum, but in the others, massage and an autogenous vaccine brought a speedy cure. The intestinal disease has to be combated at the same time. In 18 other cases the coli infection started in the seminal vesicles and spread downward to the epididymis. In six the onset suggested acute pyelonephritis; in the others the insidious and chronic course deceptively resembled that of urogenital tuberculosis. In all the groups colon bacilli and pus were found in the urine from the urethra while catheter urine from the bladder was normal. There was no history of venereal disease in the total twenty-three cases described in full, but in all there was a history of chronic constipation and intestinal inflammation, the source of the infection. The epididymis in these cases was more diffusely swollen and fibrous than is the rule with a tuberculous process. In one typical case a man of 43 with chronic constipation developed diarrhea and pains in the ileocecal region, followed by a subacute epididymitis which recurred and passed into a chronic phase. In other cases there was a history of sigmoiditis or recent typhoid. In three cases the pressure from a truss on the bowel and vas deferens may have been a factor. In about half the cases the frequent painful micturition and slight admixture of blood in the urine at the beginning or end led to the assumption of urogenital tuberculosis.

In the discussion later, Rovsing specified that he makes the vaccine according to Wright's technic, and begins with 20 millions to a Pravaz syringe. By proceeding cautiously, keeping within the doses which do not induce a temperature reaction or symptoms of anaphylaxis, he increases to 100 millions. When this is reached, he jumps at once to 200 and then to 400, 700 or 800 millions, to the maximum, 1,000 millions. This he continues, giving the 1,000 millions four, five or ten times, as this seems to be the effectual dose. In his twelve cases of coli epididymitis, the epididymis had been removed on the diagnosis of tuberculosis, but nothing was found to suggest a possible tuberculous origin. As the men were cured by the operative treatment, no attempt at vaccine therapy was made in these cases. Rovsing reiterates in conclusion that he was the first to conduct extensive research on the bacterial content of the normal male urethra, and he never found colon bacilli present. There is thus no opportunity for canalicular infection, and in the cases described it must have been of hematogenous origin.

### Hygiea, Stockholm

July 15, 1918, 80, No. 13

124 *Bladder Tumors. A. Neander.—p. 753.
125 Center of Gravity in Erect Position. T. Resmark.—p. 781.

**124. Bladder Tumors.**—Neander analyzes the experiences in 49 operative cases of primary bladder tumors. Blood in the urine, often without pains, was the most characteristic and constant symptom, but it has no connection with physical exercise, thus differing from bladder stone hematuria. An enlarged prostate must not be allowed to divert the attention from a possible tumor with hematuria. In 2 of the 49 cases there were pains suggesting cystitis several weeks or months after the first appearance of blood in the urine. Cystoscopic examination is imperative in every case of catarrhal disease of the bladder as also when blood appears in the urine. In one case pain on one side of the spine was the first sign of trouble. It was supposed to be rheumatism but finally the diagnosis was changed to pyelitis. The cystoscope revealed three small papillomas near the ureter mouth on that side. After their removal there were no further pains.

In another case the man of 30 had ten operations for papillomas in the bladder in the course of nearly six years. The tumors finally recurred in a malignant form. After the tenth operation, roentgen treatment was given through a temporary bladder fistula, and the man has had no recurrence during the nine years since to date. Eight twenty-minute exposures were given in the course of eight days. A medium hard tube was used, with a total of 17.5 H units; distance, 22 cm. The exposures were preceded by local anesthesia and morphin. The general practitioner must bear in mind the marked tendency of benign bladder tumors to develop early into cancer, and not waste too much time on symptomatic treatment of hematuria and cystitis. The operation must be extensive and radical, and the patient must be kept under regular control for the first few years so that any recurrence may be detected and removed at once. All bladder tumors seem to possess a potentially malignant character. Only 12 of the 49 patients were women; the youngest was 29, the oldest 80. The immediate postoperative mortality was 45 per cent., but 3 of the 7 cancer patients who survived the operation are still living, nine, seven and six years to date. Of the 20 patients with apparently benign tumors, no less than 9 have died since, all from malignant disease except 2.

### Norsk Magazin for Lægevidenskaben, Christiania

August, 1918, **79**, No. 8

126 *Idiopathic Dilatation of Esophagus. F. Harbitz.—p. 841.
127 *Thalamometer. G. Ræder.—p. 862.
128 *Chronic Stenosis in Larynx or Trachea. V. Uchermann.—p. 872.
129 *Syphilis of Internal Organs. K. Nicolaysen.—p. 890.
130 *Aplasia or Dystopia of Kidney. G. Schaanning.—p. 901.
131 *Mechanism of Acute Duodenal Occlusion. S. Høyer.—p. 914.

126. **Idiopathic Dilatation of the Esophagus.**—Harbitz describes the clinical and necropsy findings in three cases of this anomaly which he classes with Hirschsprung's disease and hypertrophy of the pylorus in infants. All three seem to be the result of some congenital abnormality, possibly a tendency to functional atony of the walls, with abnormal conditions in the vagus nerve causing spasmodic contraction of the bowel, pylorus or cardia. The patients in the three cases reported were men of 34, 40 and 27, and they had been having noticeable dilatation of the esophagus for eight, four and seven years.

127. **To Measure Depth of Anterior Chamber.**—Ræder calls the instrument described, with illustrations, the thalamometer.

128. **Operative Treatment for Stenosis in Trachea and Larynx.**—Uchermann reviews the different methods in vogue for treating chronic stenosis in trachea or larynx and expatiates on the unsatisfactory results often obtained with these needlessly extensive and comprehensive operations. All that is necessary is to act on the exact point of the traumatic stenosis, stretch it, and leave the rest of the organ intact. He accomplishes this by introducing a nickeled cylinder on a handle. It is introduced from the cannula opening, just below the stenosis, and does not extend above it. No force is used to introduce it as the stenosis is severed beforehand on the median line. The blunt-tipped herniotome with which this is done does not incise the skin except the buttonhole for its introduction. Since 1909 he has applied this treatment in five severe cases, all but one sequels of diphtheria. The patients were children from 2 to 4 years old and one young woman. The latter had worn a tracheotomy cannula for seven years after diphtheria at the age of 4. After its removal the tracheostomy could not be closed on account of the stenosis. All were completely cured with this slitting of the stenosis tissue plus retrograde dilation. He makes a point of removing the cylinder and the cannula every morning to allow the patient a chance to cough up mucus. They are then replaced at once.

129. **Visceral and Pulmonary Syphilis.**—Nicolaysen writes that unquestionable syphilis was found in 10.5 per cent. of 1,137 cadavers before 1906, and in 6.4 per cent. of the 2,695 since then. In a case described in detail the man of 51 had presented symptoms at 40 diagnosed as beriberi at the time. Later came ascites, with dyspnea, dulness over both lungs at the rear, and edema, but no fever; occasionally there was vomiting of brownish masses. Necropsy showed the brain, heart and large vessels apparently normal but a large gumma was found in one lung and smaller ones in the liver, pylorus and around the spleen, plus a fibrous orchitis. No signs of tuberculosis anywhere.

130. **Congenital Kidney Anomalies.**—Schaaning states that the solitary kidney and the displaced kidney are peculiarly subject to disease. He reports a case of each. Winter found pathologic conditions in sixty-five of 235 solitary kidneys. The displaced kidney may press on the bowel, bladder or genital organs and interfere with their functioning or induce neuralgia, etc., from pressure on nerves or vessels. Twelve cases of chronic renal tuberculosis with a spontaneous cure have been published in Norway, but the "cure" is usually at the expense of the functional capacity of the kidney. In two such cases, at necropsy or operation, the kidney felt as if made of cement.

131. **Acute Paralytic Occlusion of the Duodenum.**—Høyer applies this term to what others call acute arteriomesenteric occlusion, duodenojejunal ileus or acute gastroduodenal atony. The acute dilatation of the stomach is usually the most striking feature of the cases, and lavage of the stomach, with change to the prone position often bring relief and cure. In an otherwise typical case described there was no dilatation of the stomach, and von Haberer has published a similar case. The acute dilatation of the stomach may occur from some mechanical hindrance or from paralysis of the stomach or both. The mechanical hindrance may be from spasm of the pylorus from an impacted piece of meat or a polyp or a kinking of the pylorus or upper duodenum or from pressure from a tampon, as after a gallstone operation. When the mechanical hindrance is lower down, in the lower duodenum or upper jejunum, the course is less acute; the vomit contains bile, but no fecal matter, the peristalsis of the stomach is lively but the stomach may not become dilated, and in these cases no benefit is derived from change to the prone position. Gastroptosis seems to afford a predisposition.

Høyer's experimental research on dogs has confirmed his clinical deductions that the explanation of the whole trouble is that the bowel becomes obstructed by paralysis and dilatation of the lower duodenum—irrespective of whether or not there is dilatation of the stomach. The occlusion is induced by some kinking or some fold or valve formation at the point where the loose duodenum joins the more solidly fastened and relatively narrow jejunum, that is, at the duodenojejunal flexure. Possibly also cases occur in which, without any actual mechanical occlusion, the lower third of the duodenum may become too weak to force its contents through the lumen of the flexure. Lavage of the stomach, the pelvis raised, and change of position are called for at once; the prone position or the knee-elbow, or merely lying on the right side may bring relief. If not, operative measures are indispensable. No food should be allowed by the mouth; fluids should be given by the rectum. When it is necessary to operate, jejunostomy with a drain introduced into the duodenum seems rational or, possibly better yet, expose the duodenum after dividing the gastrocolic ligament between two ligatures, and try to mobilize the flexure, making a small opening into the duodenum and inserting a drain. The cases on record in which gastrojejunostomy was done or merely the duodenum evacuated have given bad results, as also gastrostomy.

### Ugeskrift for Læger, Copenhagen

Aug. 1, 1918, **80**, No. 31

132 *Test for Sugar. H. C. Hagedorn and B. N. Jensen.—p. 1217.

132. **Quantitative Determination of Minute Amounts of Sugar.**—Hagedorn and Jensen comment on some of the disadvantages of Bang's micromethod for determining the sugar content of blood; among others the extreme precision required in the boiling procedure, and the nondurability of the iodin solution. With potassium ferricyanid it is possible to obtain equally reliable findings without these drawbacks, as they describe in detail. The technic is based on the fact that a chemical once reduced does not become oxidized anew during the short time required for the test. Several tables are given showing the precision of the method. The technic is simple although five reagents are required.